VETERINARY MEDICINE

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CONTENTS

Veterinary Progress, Policies and Comment

Future Wars Without Cavalry, 43; Leprosy in Rodents Spreading, 43; Penicillin, 43; Cause of Bloat, 44; Folic Acid, 44; Carotene in Common Grasses, 44; Lamb Feeding, 44; New Headquarters Army Veterinary Service, 44; Jaw Defects in Sheep, 45; Types of Penicillin, 45; DDT as a Dusting Powder, 45; Sulfa Drugs Made More Effective, 45; Gen. Kelser Becomes Dean of School of Veterinary Medicine, University of Pennsylvania, 46; Retirement of Dean Geo. A. Dick of Pennsylvania,, 45; Dr. Robert Graham Elected Dean of ew School of Veterinary Medicine at the University of Illinois, 46; Col. James A. McCallam New Chief of Veterinary Corps, U. S. Army, 46; Army Veterinary Corps Activities, 50; Effective Wound Treatment, 57; Spray Mixture for Cattle Ticks, 57; Agricultural Prosperity and the Veterinarian, 67.

Anesthesia 47

Why an A. V. M. A. Research Fund 48

Vegetable Protein in the Swine Ration 51

Swine Disease Control 23

Diseases of Sheep 53

Pregnancy Toxemia in a Cow 56

A Veterinarian's Experiences on the Roof of the World ... 58

R. A. Veterinary Officers Retired Since the War Began ... 62

Reminiscences 68

Clinical Reports 70-75

Double Cervix in a Cow, 70; Carcinoma of the Maxillary Sinus in a Horse, 72; Malignant Head Catarrh, 72; Traumatic Splenitis in a Dairy Cow, 73; Unclassified Testicular Tumor, 73; Posterior Paralysis in an Aged Bitch, 74; Latent Infection Following Castration, 74; Infection in the Throat Region of Cattle, 75; Traumatic Pericarditis, 75; Supernumerary Toe in a Cocker Spaniel, 75.

Abstracts 76-78

Calcium Carbonate as an Antacid with Penicillin, 76; Value of Vaccination in Control of Brucellosis, 76; Typanites of the Rumen in Cattle, 78; Treatment of Choke in Cattle, 78; Excretion of Histamine in the Urine, 78.

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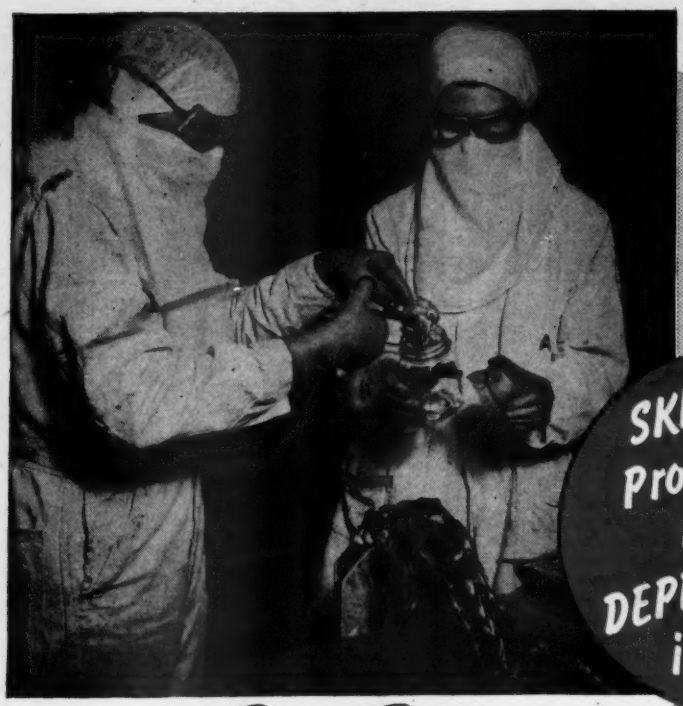

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In the commercial broiler areas it is common practice to produce three-pound broilers in 10 to 12 weeks with 10 to 11 pounds of feed.

Several consignments of small ampules containing a sufficient amount of spores to produce unlimited quantities of penicillium notatum mold, have been flown to China. These are being used, when grown on the proper culture, to produce penicillin which will shortly be available for treatment of casualties in that country, according to the National War Fund.

The army has decided to fight its future wars, if any, without cavalry, except the mechanical kind. The horse is too vulnerable for modern weapons, too slow for reconnaissance in an age of jeeps, weasels, armored cars and airplanes. Mounted troops require a too long period of training and are too expensive for the occasional situations into which they fit. The 1st Cavalry Training Regiment at Fort Riley, the seat of the Cavalry School, has been deactivated and the number of horses at this historic cavalry post reduced to 600.

In the fractionation of human blood plasma, large amounts of fibrinogen and thrombin have become available and a promising fibrin film suitable as a dural substitute has been prepared from these proteins. Other fibrin films have been produced but the one most suitable as a dural substitute is translucent, firm and somewhat brittle when dry but after remaining in a saline solution for 15 minutes, it becomes transparent, flexible and elastic. It is packaged dry and sterilized in a glass ampule.

The average potency of penicillin in 1944 was 200 units per milligram. At present every lot is over 350 units and runs as high as 1100 units per milligram.

Sponges of starch which will absorb up to 18 times their weight and yet are firm enough to retain the absorbed liquid are being being made. These starch sponges may be used for internal surgical dressings to be absorbed in the body.

When a mixture of calcium penicillin, 100,000 units per cubic centimeter in peanut oil and white beeswax (4%), is injected intramuscularly in doses of 200,000 units, pencillin can be detected in significant amounts for a considerably longer period than when use is made of penicillin in water or in saline solution.

Leprosy in rodent species is spreading. The disease has been detected in species of *Mus musculus,* and *Rattus norvegicus* in New South Wales. The more thorough the search for leprosy organisms in the body of infected animals the more generalized was found to be the distribution.

The Rh blood factor, first identified in the rhesus monkey, was absent in chimpanzees tested in the office of medical examiners of New York City. This Rh factor exists in the blood of about 85% of the population of the United States. It has been demonstrated that transfusions of blood having the Rh factor given to persons from which this factor is absent in the blood, may cause complications and even death.

Stiff lambs are due to three causes, arthritis, laminitis due to over-feeding and phosphorus deficiency (chiefly in the southwestern states).

Tests, at the Ondertepoort, South Africa experiment station, of excipients for anthrax spore vaccine indicate that a 20% solution of sodium chloride is the equal of saponin and possesses some physical advantages over that commonly used excipient.

Carotene determinations of eight common pasture grasses made monthly from June to November at the Nebraska experiment station showed in general a steady decline in amount from a high in June of 39.12 mg per 100 grams dry matter to less than 1 mg per 100 gm in November. Indian grass ranked highest of those tested and buffalo grass ranked lowest throughout the season.

Cole, Mead and Regan, University of California, testing the theory that bloat is caused because of insufficient irritating substance in the rumen of a cow, produced bloat in 10 of 17 cows by depriving them of hay and bedding when they were pastured on alfalfa. The bloat was then effectively controlled by feeding sudan hay in the corral or at pasture. The most severe cases of bloat occurred in cows deprived of hay for 48 hours.

Humane Association Hospitals

The Massachusetts Society for the Prevention of Cruelty to Animals maintains two hospitals for animals; one in Boston and the other in Springfield, Mass.

During 1944, 10,691 animals were hospitalized; 21,211 were treated in the dispensary and 3,603 operations were performed at the Boston hospital. At Springfield the number treated was 12,235.

The operating deficit of the two hospitals was $47,287.79 for the year, according to the annual report.

In experiments, conducted at the Oklahoma experiment station, as to the amount of blackstrap molasses which could be used for lambs and not lower the digestibility of proteins, it was concluded that the most effective use could be made of the molasses when it constituted not more than 5% of the basic ration used in the tests. The basic ration was composed of about 900 grams—454 alfalfa, 44 cottonseed meal and 410 grams of yellow shelled corn. The amount of corn fed was reduced to 46 grams—the same weight as the substituted blackstrap molasses.

Folic acid, newly synthesized vitamin, increased the number of immature blood cells and brought the mature red cells and hemoglobin content towards normal in several cases of anemia, according to a report by Tom D. Spies of the University of Cincinnati.

In an investigation of the absorptivity for solar radiation of different colored hair coats of cattle, by the veterinary service of the Union of South Africa, it was found that white Zulu absorbed 49%, cream-colored Simmenthal 50%, red Afrikaner 78%, dark-red Sussex 83% and Aberdeen Angus 89%.

Pet dogs belonging to American personnel in the Mediterranean Theater may be shipped to the United States by freight on War Shipping Administration vessels. Pet dogs cannot be shipped or carried aboard United States navy or army transports. Freight charges must be paid by the shipper.

Lamb Feeding

In experiments at Cornell University lambs full fed shelled corn, first cutting alfalfa and corn silage made more rapid daily gains at a lower feed cost per 100 pounds gain and a higher net profit than lambs fed either the hay and corn or the silage and corn.

The best (economic) results were obtained when the protein in the ration constituted between 10% and 10.5%. Linseed meal as a protein supplement proved slightly superior to soybean oil meal, soybeans or corn gluten meal.

New Headquarters Army Veterinary Service

A new sub-division, the Army Veterinary Corps, has recently been added to The Air Surgeon's Office, Washington, D. C. Lt. Colonel Benjamin D. Blood, V.C., has been assigned to that office, and thus becomes the first Chief Veterinarian of the Army Air Forces.

The functions of the A.A.F. Veterinarian include formulating Air Force veterinary policies; exercising professional and technical supervision over veterinary personnel of the Air Forces; and coordinating A.A.F. veterinary matters with civilian and other veterinary agencies.

Colonel Blood, a graduate of Colorado A. & M. College, returned to this country in August after serving 39 months in England and the European Continent as Chief of the Air Forces Veterinary Service, European Theater of Operations.

Jaw Defects Impair Growth of Sheep

Research at the U.S.D.A. has shown that sheep with jaws of unequal length are not as good producers of meat and wool as normal sheep. Since prognathism is hereditary such animals should be culled from the breeding flock.

That the incidence of *Brucella melitensis* infection in man is no longer confined to the Southwestern States is shown by the isolation of this strain of the organism from five victims of undulant fever in Iowa, all packinghouse workers in the sheep slaughter department of the plant. The isolations were made by the Iowa state department of health.

Alfalfa silage contains seven to 14 times as much carotene as good alfalfa hay, according to dairy specialists in the U.S.D.A. It is the carotene in the pasture or forage of cows that determines the amount of vitamin A in the milk, butter and cheese. It was determined also that cows give 7% more milk when fed alfalfa silage than when fed high quality alfalfa hay.

In view of the expected surplus supply of potatoes it is of interest to learn from the extension livestock specialist of Pennsylvania State College that potatoes are satisfactory for feeding beef cattle, sheep and swine in limited amounts as a substitute for grain or other feeds. Too large amounts may cause scours especially if the potatoes are not ripe or have sprouts as these contain a toxic substance solamine. In feeding swine to get the best results the potatoes should be cooked before mixing with a supplement.

Commercial penicillins prepared from deep vat cultures consist almost entirely of penicillin G while that from shallow surface cultures in flasks may contain penicillin X up to 25%.

The potency of penicillin X is approximately 900 Oxford units per milligram while crystalline G has a potency of 1,650 units per milligram. Penicillin X has been found more effective in vitro against a strain of type A Friedlanders bacillus. In four strains of *Staphylococcus aureus* and *Bacillus subtilis* the action of the two types of penicillin seemed equally effective but in preliminary studies, G has been found to be as much as five times more effective in protecting mice against 10,000 lethal doses of pneumococcus I while penicillin X is more effective against a number of different organisms among them being *Erysipelothrix rhusiopathiae* and *Escherichia coli*.

Quinn, Gordon and Godfrey (B.A.I., Beltsville) determined in an investigation extending over eight years that loss of weight in eggs is dependent upon shell quality and shell quality is a heritable factor.

Langer and Muller, the Swiss chemists who started DDT on its spectacular career as a killer of insects, state that 15 pounds of the new insecticide to the acre is as effective against Japanese beetle larvae as 1500 pounds of arsenical poison heretofore used.

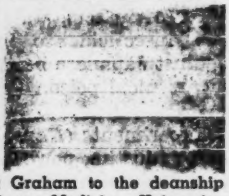
Experiments *(Kans. Agr. Exp. Sta.)* in which D.D.T. dusting powders (3, 5, 10%) were compared with sodium fluoride as a treatment for louse infestation in poultry showed D.D.T. in 10% concentration to be no more effective than sodium fluoride. In 3% concentration it was decidedly less effective than the older insecticide. The residual effect was no greater, if as great, as that of sodium fluoride.

That sulfa drugs can be made more effective against bacteria that ordinarily are resistant to them by the addition of certain synthetic dyes, has been reported by scientists at McGill University. The dyes most effective for such use are methylene blue and brilliant cresyl blue. These tests were made in *vitro*, but clinical studies conducted at Ste. Anne de Bellevue Military Hospital "indicate a promising therapeutic value"—for at least one type of infection.

Enzootic outbreaks of rabies in cattle are of common occurrence in Venezuela and Brazil. The disease is communicated to cattle (and horses and man but not to dogs) by the vampire bat, *Desmodus ecaudata*. Since the bat cannot be quarantined, muzzled nor eradicated, the only practical measure for protecting the cattle is periodic vaccination, which is widely practiced. Some ranges can be used for grazing only if the cattle are vaccinated. Vaccination is highly successful in preventing the disease.

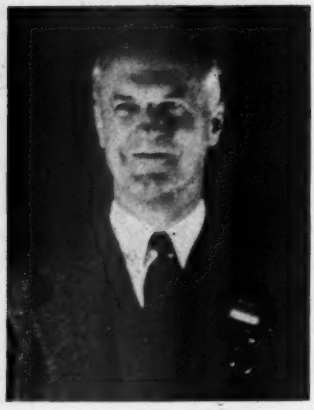
Pyrogens are toxic substances formed by various micro-organisms. Most fresh water is contaminated by them. They are only partially removed by distilling and when solutions containing them are given intravenously they cause a rise in temperature. Pyrogens are stable in boiling water and are non-dialyzable. Co Tui (*J. Lab. Clin. Med.*, 29, p. 58) has discovered recently that many of the pyrogens may be oxidized and thus neutralized by adding a small amount of hydrogen peroxide to solutions containing them.

DEAN ROBERT GRAHAM



The election of Dr. Robert Graham to the deanship of the new College of Veterinary Medicine, University of Illinois, has been announced.

Dean Graham was born in Ames, Ia., in 1888 and graduated from the Division of Veterinary Medicine, Iowa State College, in 1910 and from the University of Kentucky in 1912. From 1911 to 1917 he was Professor of Veterinary Science at the University of Kentucky and also veterinarian to the State Board of Health and pathologist to the State Livestock Sanitary Board. In 1917 he went to the University of Illinois as Professor of Animal Pathology and Hygiene. Since 1941 he has been head of the Department of Animal Pathology and Hygiene. In World War I Dean Graham was a captain in the Army Veterinary Corps. In 1924-25 he was engaged in the investigation of animal diseases and parasitisms in Haiti, for the United States Government.



DEAN GEORGE ALEXANDER DICK

At his own request Doctor Dick has been relieved of the deanship of the School of Veterinary Medicine, University of Pennsylvania. He will remain with the school as head of the Department of Animal Industry and Director of Bolton Farm.

Dean Dick was born in Ontario in 1877 and graduated from the School of Veterinary Medicine, University of Pennsylvania, in 1904, and from the Animal Husbandry Department, Iowa State College, in 1919. He practiced at Kane, Pa., from 1904 to 1916, joining the faculty of his alma mater in 1917. He was appointed Professor of Animal Industry in 1920 and elected Dean in 1931.

By devoting all his time to Animal Industry and the Bolton farm Dean Dick plans for a more extensive use of the farm in the program of teaching and research.

BRIGADIER GENERAL RAYMOND A. KELSER

Brig. Gen. R. A. Kelser, for the past eight years chief of the Veterinary Division of the Surgeon General's Office in the War Department, has been elected Dean of the School of Veterinary Medicine of the University of Pennsylvania and will retire from the Army and take over the duties of his new position immediately.

General Kelser was born in Washington, D. C., in 1892, graduated from the Veterinary Department, George Washington University, in 1914 and received the degree of Master of Arts in 1922 and of Doctor of Philosophy in 1923 from the American University. He served as bacteriologist with the H. K. Mulford Company for a year and in the Bureau of Animal Industry from 1915 to 1918; entering the Army in the latter year. His Army service comprised Chief of Veterinary Laboratory, Letterman General Hospital, commanding officer, Army Veterinary Laboratory in Pennsylvania, commanding officer, Veterinary Laboratory Division, Army Medical School, instructor in bacteriology, Army Medical School and member of various research boards.

* * * *

Col. McCallam, New Chief of V.C.

Although not yet officially announced it has been understood for some time that Col. James A. McCallam will be the next chief of the Veterinary Corps.

Colonel McCallam was born in Pennsylvania in 1894 and graduated from the School of Veterinary Medicine, University of Pennsylvania, in 1917, from the Army Veterinary School in 1925 and from the Medical Field Service School in the same year. He was commissioned a first Lieutenant in the Veterinary Corps of the National Army in 1917 and in the Regular Army in 1920. Promoted through the grades he received the permanent rank of Colonel Aug. 3, 1944.

Anesthesia*

The first step in a surgical operation is restraint and there can be no adequate or satisfactory restraint without anesthesia. An outstanding difference between the quack and the scientific man is, the one relies upon mechanical restraint, the other employs anesthesia. There can be no good surgery without relaxation of the tissues and only anesthesia will provide relaxation.

There is a place for all three kinds of anesthesia—general, mixed and local.

Chloroform is commonly used among the general anesthetics but it is not the most satisfactory. The percentage of mechanical pneumonias that follow its use are too high, particularly in our experience in high altitudes. We generally use it for castration and for other operations of short duration. It is given to the standing animal by means of a chloroform muzzle. Horses usually go backward onto their haunches and can be pulled down on either side with the halter. It is not well to stand directly in front of the horse when it is being chloroformed. I remember one that unexpectedly plunged forward.

Chloral hydrate is preferable to chloroform for operations of considerable duration. It should not be administered in stronger than 7% solution, and it should be given slowly. No one can tell how much chloral an animal will require. By giving a dilute solution and giving it slowly, one can adjust the amount to the requirement for that particular animal. It is given to the animal standing. Some horses will go down from 300cc, others require up to 500cc. After the animal is down, such additional chloral as may be needed, is injected. The first evidence of anesthesia is disappearance of the palpebral reflex. This is followed by nystagmus, the eyes rolling at first rapidly, then slowly and then stopping. That is the signal that surgical anesthesia and relaxation have been attained. There is absence of corneal reflex at this stage.

Another place in which chloral hydrate can be used to great advantage is in nervous or unruly animals. We give them 250cc of chloral hydrate solution intravenously and convert them immediately into gentle docile horses that can be handled as easily as the old family mare. We treat many high strung thorobreds requiring examinations and minor operations and give their handlers a great deal of trouble and not infrequently injure themselves when being loaded onto cars or trucks, or clipped or, sometimes, when being shod. Life is just too short to struggle with obstreperous animals, and it is seldom indeed that we find need for the use of the twitch with sedation of this nature.

Contrary to the general teaching, chloral hydrate is a safe general anesthetic for cattle, provided all feed is withheld for 24 hours before the anesthetic is given.

Nembutal induces a satisfactory general anesthesia and is very convenient to admin-

James Farquharson

ister, but it is too expensive to use for large animals. We use it in colts up to about one year of age and in calves.

Many major surgical operations can be performed without general anesthesia. It depends much upon the location of the operative field. Sometimes regional anesthesia, e.g., epidural anesthesia meets every requirement, or a combination of local and infiltration of the field is adequate. For quite a number of operations nerve blocking is the method of choice. There is no other type of anesthesia as satisfactory as nerve blocking when it is applicable. But nerve blocking is an operation in itself and requires a precise technic.

In many operations, a mixed or balanced anesthesia is preferable to any one kind. Give enough chloral hydrate or chloroform to quiet the animal and then a local, or regional anesthetic as may be needed. The shock is less and recovery smoother from mixed than from any other anesthesia. Don't find fault with local anesthetics. They are all good. If anesthesia doesn't result from their use, the fault lies with the user.

*Notes from an address by James Farquharson, President of the A.V.M.A. at the 22nd Annual Short Course for Veterinarians, October 31-November 1, 1945, University Farm, St. Paul, Minn.

Why an AVMA Research Fund*

A campaign to raise a research fund of $100,000 from members of the veterinary profession was started recently. The purpose of the fund are two-fold:

1. To advance knowledge in both the basic and applied aspects of veterinary science.

2. To assist in the training of promising young scientists in these fields by affording them financial support, in the form of fellowships, for graduate education.

No one can foretell the amount and usefulness of new knowledge that may be developed through research. Horizons are constantly expanding. One who would have predicted 20 years ago the advances made through scientific research between 1925 and 1945 would have been regarded as a wild dreamer. In all probability only a wild dreamer today could predict the advances by the same means that will be made in the next 20 years. All that we can safely predict is that many advances are certain to be made in all fields which affect human life and well-being. Progress will be greater in some fields than in others, depending to a considerable degree upon research in the various fields. This is the teaching of experience. It is our wish and hope that veterinary medicine will not lag behind other professions. To attain this end we must provide that research in this field shall not be neglected.

In the past scientific progress in veterinary medicine has been slowed by lack of adequate financial support. This has determined the small number who have worked in this field, and been responsible for the inadequate training of many who have been identified with veterinary research. The opportunities in veterinary research as a career have been too meager to attract an adequate number of capable men. It has been said, with much truth, that academic research must be its own reward, for persons engaged in it must serve because of love for their work, rather than for financial gain. It must be pointed out, however, that scientists as well as others must eat, and generally must support families. Hence the saying should not be taken too literally.

The training of research specialists is accomplished in post-graduate schools. Few veterinary graduates have the means to pursue such work. If more research apprentices are to be trained, they must have financial aid. We expect that this campaign will supply funds for this purpose to many who will make up our next generation of veterinary research workers.

Since knowledge in all fields is growing, we too, must grow if we are to retain the respect of the public. In the past veterinary medicine has drawn heavily on the output of medical research laboratories for knowledge especially in the basic sciences. This we shall continue to do. However, it is essential for our professional welfare and our self-esteem, that we derive for ourselves more of this knowledge and depend less upon outside sources for it.

If the veterinary profession expects to grow by developing better methods and more exact procedures, it must recognize certain facts:

a. We do not have enough men, well-trained in research methods, for the work that must be done.

b. We do not have enough well-trained specialists to staff the teaching positions of our present veterinary schools. The new schools that are now being formed make this problem even more acute.

c. We do not have enough funds to support, adequately, the few research workers that we now have.

d. We do not have enough well-trained research men to train the younger potential workers in this field.

What are we going to do about these matters?

We are putting this question up to all who are interested in any aspect of veterinary service. We are putting this question first to you, members of the profession, the group most directly concerned. We expect you to show your recognition of this problem and your interest in its solution by contributing liberally to the fund that we purpose to raise. Let no member of the profession deceive himself by thinking that this is not a matter of immediate personal concern to him. It is—unless the welfare of the whole profession is of no concern to him.

The funds realized from this campaign will be administered by the Research Council of the American Veterinary Medical Association. This Council was organized in 1942 to administer any research fellowship funds that might become available to it. The Council will select the fellows, approve the projects upon which they propose to work, and make arrangements with the institutions where they will work. The Council consists of 15 members, all outstanding men in their respective fields. The present members and the fields which they represent are:

Anatomy and Histology

H. L. Foust, Professor of Veterinary Anatomy,

*From the special committee of the A. V. M. A. on financing research, J. V. Lacroix, Chairman, W. A. Hagan and C. C. Hastings.

Division of Veterinary Medicine, Iowa State College, Ames.

Bacteriology (Immunology and Biologic Therapy)

Edward Records, Research Professor of Veterinary Science, University of Nevada, Reno.

Biochemistry and Animal Nutrition

George H. Hart, Head, Division of Animal Husbandry, University of California, Davis.

Large Animal Medicine

James Farquharson, Professor of Surgery and Clinics, Division of Veterinary Medicine, Colorado A. & M. College, Fort Collins.

Large Animal Surgery

W. F. Guard, Professor of Surgery and Obstetrics, College of Veterinary Medicine, The Ohio State University, Columbus.

Parasitology

E. W. Price, Assistant Chief, Zoological Division, Bureau of Animal Industry, Beltsville Research Center, Beltsville, Md.

Pathology

E. T. Hallman, (Chairman, Research Council), Professor of Pathology, School of Veterinary Mdicine, Michigan State College, East Lansing.

Physiology and Pharmacology

H. H. Dukes, (Secretary, Research Council), Professor of Veterinary Physiology, New York State College, Cornell University, Ithaca.

Poultry Pathology

C. A. Brandly, 25 Shattuck St., Boston.

Small Animal Medicine

M. L. Morris, Practitioner, New Brunswick, N. J.

Small Animal Surgery

C. F. Schlotthauer, Associate Professor, Division of Experimental Medicine, Mayo Foundation, Rochester, Minn.

Veterinary Hygiene

Chas. A. Mitchell, Animal Disease Research Institute, Hull, Quebec.

Virus Diseases

R. A. Kelser, (Vice-Chairman, Research Council), Brigadier General, United States Army; Chief, Veterinary Division, Office of the Surgeon General, War Department, Washington, D. C.

X-Ray

M. A. Emmerson, Professor of Veterinary Obstetrics, Division of Veterinary Medicine, Iowa State College, Ames.

Member-at-Large

Hadleigh Marsh, Agricultural Experiment Station, Bozeman, Mont.

The Council is interested primary in selecting promising young men for these fellowships. The fields in which they will work is of secondary interest, although an effort will be made to stimulate work in the basic sciences as well as on problems that are of immediate practical importance. The fellows may work in non-veterinary as well as in veterinary institutions, so long as the Council believes that the training received will ultimately benefit and advance veterinary science.

Only graduate veterinarians who are citizens of the United States or Canada will be eligible for these fellowships.

Usually arrangements for fellowships will be consummated by a grant to the institution where the fellow will work. From the grant the institution will pay the stipend to the student in periodic installments. These stipends will be calculated so as to provide for moderate living expenses of the students while they are studying. Generally educational institutions will cooperate in maintaining fellowships of this kind by waiving part or all of the ordinary tuition fees.

Fellows maintained by the fund will be free to devote their full time to their studies; they will not be required to teach or do other routine work, except a limited amount of such service is agreed to by the fellow and the Council at the time the grant is made.

The purposes of the fund are indicated at the beginning of this statement. We have dealt here principally with the second of the two purposes stated. This objective may be regarded as a means toward an end—the real end indicated by the first purpose—namely, to advance knowledge in all fields of veterinary science. The practical achievement of this goal depends upon having sufficient well-trained manpower in the research and teaching fields. This latter is our immediate aim. Later we will elaborate on the problems upon which research is needed for solution.

In due time all graduate veterinarians of North America will be approached individually for contributions, and it is hoped they will respond liberally. The goal for this group may be attained and even surpassed by a minimum contribution of $10 by each veterinarian. The committee expects to approach animal lovers, livestock owners and commercial organizations for substantial cash contributions but cannot very well do this until we, ourselves, have manifested our confidence in the plan by raising, at least, the amount stipulated above.

This project affords the veterinary profession an opportunity to demonstrate to others that it takes pride in its work and has faith in it. We cannot expect others to support such efforts with liberality unless we are impressed with our own seriousness.

* * * *

India has 219,200,000 milk producing animals. This is one-third of the world total. The best herds which are on government farms produce an average of 6000 pounds of milk per year.

Army Veterinary Corps Activities*

During the calendar year 1944, the Veterinary Corps inspected the largest volume of meat, meat food, and dairy products in the history of the Army—8,222,504,543 pounds. The inspection of such an enormous amount of foodstuffs, much of it highly perishable, was accomplished with no serious widespread outbreak of disease among troops traceable to the issue of unwholesome meat, meatfood, and dairy products. In addition to protecting the health of troops, the Veterinary Corps' meat and dairy inspection service also protected the financial interests of the Government. This was borne out by the fact that products rejected for failure to meet Army specifications in 1944 represent an estimated equivalent monetary saving of $27,460,000.

A ten-mule team on mountain of Burma Road hauling howitzer to Yunnan, China

Over 50 million pounds of powdered eggs were procured for the Armed Forces during 1944. Inasmuch as the powdered egg industry was a comparatively new one in the United States, many changes in operational procedures and equipment had to be made. Especially trained veterinary officers visited the drying plants and outlined the necessary changes and improvements to insure the sanitary quality of the product.

Milk shortages were relieved at a number of camps located in the southern part of the United States by shipping pasteurized milk from northern milk sheds. The milk was shipped in paper quart containers under dry ice refrigeration. This practice proved satisfactory with few exceptions. All the important sources of fresh milk in all service commands were surveyed. These indicated that the fresh milk supplied to Army installations in the United States was of satisfactory quality.

The daily average number of horses and mules of the entire Army in the calendar year 1944, was 43,334. This represented a decrease in the total animal complement. Horses and mules were extensively used in Italy during the year, and much veterinary work was necessary. Veterinary officers serving in the India-Burma and China Theaters rendered invaluable service to the Chinese Army.

In China, where animals were the principal mode of transport, it was vitally important that their health and physical efficiency be safeguarded. After nearly 6 years of war, however, the Chinese had practically no supplies and equip ment for the care and treatment of animals. Furthermore, wartime conditions had made severe inroads on veterinary education in China. Consequently, Chinese veterinary personnel had to be schooled in modern, scientific methods of care and treatment. To accomplish this, U. S. Army veterinary officers established schools for Chinese veterinarians.

In all oversea movements of animals, Veterinary Corps officers accompanied each shipment to its final destination. Despite the fact that most animal transports were en route as long as 45 to 60 or more days, all shipments were completed with the animals in excellent condition and with exceptionally few losses.

The health of Army horses and mules continued to be highly satisfactory. All Army horses and mules were afforded complete protection against infectious equine encephalomyeletis for the sixth consecutive year. The incidence of influenza, strangles, and common respiratory diseases continued at a low level.

On 1 January 1945, the dog strength of the Army was 4,118. In safeguarding the health of dogs, those known to be under 2 years of age were immunized against distemper. All dogs, at the time of acceptance by the Army, were vaccinated against rabies. Some 10,000 cases of rabies were reported among civilian-owned animals during 1944, during which time there were none among Army animals.

*From the Annual Report of the Commanding General, Army Services Forces, for the fiscal year 1945.

Vegetable Protein in the Swine Ration

In an Illinois experiment the basal ration fed to sows during gestation was, ground yellow corn, 83%; soybean meal, 8%; fish meal, 2%; tankage, 5%; limestone, bone meal and iodized salt each 0.5% and 0.5% fortified cod liver oil. The results were miserable. 13% of the pigs were born dead and only 13% survived to weaning time. Various supplements added to the ration increased the percentage weaned from 13 to 83 in the different lots.

Apparently the factor or factors required seem to be vitamins. At any rate, whatever their nature, they are found in sufficient amounts in good quality alfalfa meal when fed as 12% of the ration, because 83% of the pigs farrowed from sows on the basal plus 12% alfalfa survived to weaning time. To some extent the factors also are found in distillers' solubles but, what also is very interesting, they are present in abundance in young rye pasture.

Now let us take this data and see if we can make a practical application of it to ordinary farm practice.

About the first criticism that would arise from some is the fact that the basal ration does not contain enough animal protein. Well, that is just opinion. The addition of 12% alfalfa hay raised the percentage of pigs weaned from 13 to 83%. The protein of alfalfa is

vegetable protein. There is good reason for these opinions about the superior quality of protein of animal origin—meat, fish and milk, —over those of vegetable origin.

Proteins of animal origin contain more minerals than those of vegetable origin. Every one knows that, so the research workers in nutrition for many years have equalized the mineral content of their test rations when comparing animal and vegetable proteins.

On the other hand, prior to about 1938 they knew very little about the requirements of animals and poultry for vitamins of the B-complex. In fact, they did not know too much about these vitamins at all outside of riboflavin, nor which feeds contained them in abundance.

As knowledge progressed it was found that meat scraps, tankage, fish meal and dried milk products contained much more of these B-complex vitamins than did soybean meal, linseed meal, gluten meal and cottonseed meal. Before they knew about this they did not and could not equalize the vitamin content of their vegetable diets with those containing animal protein. They did find that the animal protein diets produced better results and concluded that the difference was due to protein. The fact is, viewed in the light of our present knowledge, they did not know whether the difference was due to the amino acids that make up protein or to vitamins or both.

This does not justify criticizing their work. They did the best they could with the facts known at that time. Perhaps it will simplify the matter for all of us if we will discard all that data prior to six or seven years ago on this subject of animal versus vegetable protein and study only the experiments conducted since that time.

I don't wish to minimize the value of feeds of animal origin. They have a place in well-balanced rations. No question about that. We just are beginning to learn how to use them more intelligently, that's all. We know that if rations containing much smaller amounts of animal protein than were used before the war, are properly supplemented with B-complex vitamins and minerals, they perform equally well and in many cases are more economical. This information we owe to the research scientists in our federal and state experiment stations and to the nutritionists in the mixed feed industry. Working together they have accomplished a great deal for the livestock and poultry producers. Without this cooperation we could not have met the goals for meat, milk and eggs the past two years.

We know that good pasture will furnish these vitamin factors for bred sows but there is no good pasture for bred sows that farrow in the early spring. We know that good quality alfalfa fed as 12% of the ration also will furnish them. Now, as Doctor Fairbanks says, "I am not trying to sell you a load of hay," but regardless of what it costs, alfalfa meal is a good investment for any farmer to add to the ration for his sows, when not on pasture, during gestation and lactation. Many feeders may scoff at feeding so much ground hay to hogs. Nevertheless it should not be considered a filler in the ration. It is a neces-

sity when good pasture is not available. Many of these Vitamin B-complex factors are contained in the feces from cattle on full feed. For that reason let the sows follow steers in the feed lot if that is practicable.—*From an address by Lyman Peck at the 63rd annual meeting of the Illinois Veterinary Medical Association.*

Swine Disease Control in Los Angeles County

Wartime economy, both in army camps and among civilians, has decreased the food value of garbage considerably. The hog ranchers declare the waste is only a small fraction of what it was even a year ago. Hogs fed on camp and restaurant garbage are noticeably superior in condition to those receiving "household pickup" or "straight run garbage."

Vesicular Exanthema outbreaks have occurred consistently during the year. A total of 24 outbreaks were diagnosed. This disease occurred on nineteen different premises. Five premises, including the Union Stock Yards, had two outbreaks each.

Most of the outbreaks of the disease have been of low virulence; only a few could be classified as of high virulency. One ranch was maintained under quarantine for over

60 days, due to the addition of feeder pigs while the disease was active on the premises.

In August, 1943, a state order was issued requiring the inspection of all hogs on garbage feeding ranches before shipments could be made for any purpose. This inspection was carried on until the last of March, at which time it was discontinued because apparently it did not control the disease in the north end of the state. Good results were being obtained in this area from this inspection. After it was discontinued, several lots of hogs were moved into local markets and feedyards which were later found to be affected with vesicular exanthema.

We are of the opinion that the wide shipments of meat to various army camps may have spread the disease.

Hog Cholera outbreaks especially on garbage feeding ranches, have been more frequent during the past year than in the average of years past. Either there is improper handling of the virus, or carelessness in method of vaccination. The strained labor situation may be an influencing factor.

Severe cholera losses have been encountered also among fat hogs destined for slaughter from the midwestern area. In one case, 130 head were dead on arrival in a shipment of 315, and only 27 finally passed inspection at the time of slaughter.

Salmonella infection apparently has not been on the increase as compared to former years. The better class of garbage, as for example from army camps, keeps the hogs in better condition, and they are apparently more able to resist this infection. Several outbreaks have been treated experimentally with sulfathalidine with promising results.

Swine Erysipelas was not diagnosed during the year. Apparently this infection does not thrive in this area. In the past we have had a few acute outbreaks, but evidently it has not become established, and fails to reappear, even on the same premises.

Swine released from the Union Stock Yards for feeding and breeding purposes during the year numbered 11,975.

Eight applications for garbage feeding permits were received. Five of these applications were for new locations, and three were for change of ownership.

One hundred fifty-one applications for permits to transport garbage over county highways were received.

Thirty-three garbage feeding ranches operate under permit in the unincorporated area of the County. There are three plants within unincorporated areas that range from 1000-3500 head, and several having less than 100 head. One state and two county institutions maintain garbage feeding ranches.

Ninety-two swine autopsies were conducted by department members during the year, with the following diagnoses: Encephalitis, gastroenteritis, rabies and toxemia, one each. Exhaustion, two; influenza, four; pneumonia and poisoning, six each; acute enteritis, eight; necrotic enteritis, 20; hog cholera, 37; no diagnosis, five.—*From Ann. Rept. of L. M. Hurt, County Livestock Inspector, Los Angeles County, California.*

Diseases of Sheep*

THE value of sheep lost from parasites, nutritional ailments, faulty management, and improper housing in Indiana is probably one and one-half million dollars annually. There are not over 8 or 10 or, at the most, 12 important diseases of sheep in the state. Thirty to forty species of parasites may infest Indiana sheep, but only eight species are important. Parasites are responsible for one-third of the whole loss, or $500,000 a year.

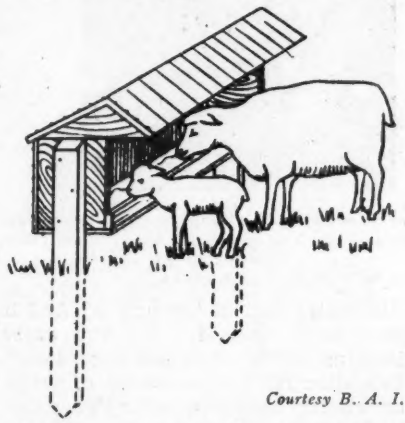
The principal loss from parasites is in the season from July to October, but a wet early spring will bring about a heavy infestation in June. Common stomach worms and nodular worms are the most important parasites of Indiana sheep. Third and fourth in importance are the medium stomach worm and the trichostrongyles. Tapeworms are found in some sections of the state.

The symptoms of parasitism are diarrhea, loss of flesh, anemia, edema and death. Unthriftiness due to inadequate nutrition gives the ever-present parasites an opportunity to multiply and overwhelm the animal. Many deaths occur from acute stomach worm infestation. Such animals die quickly. Such cases are often diagnosed as hemorrhagic septicemia.

The best parasiticide for sheep is phenothiazine but it is no value in teniasis. If tapeworms are present in considerable numbers in the flock one or two treatments with copper sulfate and blackleaf 40 (nicotine sulfate) should be given between July and October. Phenothiazine should be given to the ewes two months to six weeks before they are due to lamb and then they should be put on the 1 to 9 phenothiazine-salt mixture during May, June, July, August and September. It is the parasiticide of choice to use in cases of heavy infestation. If the cases are very severe, the treatment will kill many of the animals, but they would die anyway if not treated.

It should be remembered that the phenothiazine-salt mixture will not rid sheep of parasites. It merely mainains the *status quo*. If they need anthelmintic treatment they should receive it regardless of whether or not they are on the phenothiazine-salt mixture. Pasture rotation as a means of controlling internal parasites is an individual farm problem. It usually does not work. To make it work the average farmer would have to sell off all his sheep and go out of business for one or two years; obviously an inpractical procedure. However, if sheep are kept off a pasture during July, August and September, nearly all the worms will be gone. This is subject to nearly as many objections as is going out of business, since those are the months when the pasture load is heaviest and the need is direst for all the pasture the sheep raiser has.

The sheep raiser can avoid a great deal of parasite trouble by getting his lambs early. If he will remove his rams from the flock October 1st the last lambs will be born April 1st. By creep-feeding grain to the lambs, he can market them by the end of July and thus avoid most of the destructive parasite season. In Kentucky we never get severe parasitism



Courtesy B. A. I.

A sheltered feed trough for phenothiazine and salt

in sheep separate from malnutrition. Selling the lambs in July reduces the pasture load 50% and provides better nutrition and fewer parasite eggs for the animals that remain.

There is much loss in sheep from inadequate nutrition; from rations inadequate in quantity or quality, and often both. There is a very general belief that ewes can be wintered on hay, but it is pertinent to ask what hay and how much. Perhaps hay is kept before them all the time, but it may be lespedeza stems with no leaves and the sheep won't eat it. If it is hay they will eat, often the quantity is insufficient. Many farmers believe that five to 10 tons of hay per hundred ewes is sufficient for the winter, but in Indiana 20 to 25 tons is required. Yellow corn, alfalfa hay, salt and water, all in ample quantity, is the perfect winter ration for sheep.

Starvation is common in lambs. Some ewes that have twin lambs will refuse to have anything to do with one of them. The little fellows

*Notes from an address by F. E. Hull, University of Kentucky, at the 33rd Annual Short Course for Veterinarians, Purdue University, Oct. 11 and 12, 1945.

die quickly. Agalactia occurs in some ewes and their lambs succumb promptly.

Pregnancy disease or acetonemia, a nutritional ailment, occasions a heavy death loss of pregnant ewes from a few days to a few weeks before lambing. It occurs only in ewes that lose weight during the last month of gestation and is most common in the fourth or fifth pregnancy. The ewe must gain weight during the gestation period. She should gain from 20 to 30 pounds, the major portion of it

Pregnancy diseases occurs only in ewes that lose weight during the last month of gestation. An adequate ration prevents it

during the latter half of the period. And if she doesn't gain during the last two weeks before lambing, her owner is courting disaster. The prescription for the prevention of acetonemia then is very simple—give the ewes something to eat! Sheep have been touted as an agency for cleaning up the weeds on a farm and turning farm wastes into valuable meat and wool. The theory is all right and the ration of weeds and waste is just fine if it is supplemented with plenty of yellow corn and good, green, leafy alfalfa hay.

Acetonemia in sheep is easily diagnosed. If one can smell at all, the odor of acetone is marked. It just can't be missed! When this odor is coupled with a history of an animal due to lamb within a couple of weeks, an inadequate ration, a staggering gait and, later, paralysis, the diagnosis is simple. If there are also plenty of parasites in the flock, the picture is all the plainer since an inadequate ration becomes more deficient when the ewe is entertaining a host of helminths. That is a reason for administering phenothiazine six weeks to two months before the ewe is due to drop her lamb.

The treatment of ewes suffering from acetonemia is scarcely worth while. A good many of them will recover if given dextrose intravenously and good nursing, but the value of those saved is not likely to exceed the cost of the treatment very much. When the ailment appears in a flock it is urgent to do something for the unaffected animals immediately. The first thing is to provide an ample ration of yellow corn and alfalfa hay. This may be supplemented by three quarts of molasses per hundred ewes per day for three or four days.

Though forced exercise has been emphasized by some as a good practical way to prevent the disease, and a certain amount of exercise is always beneficial, and is to be recommended, nevertheles exercise in itself will not prevent pregnancy disease. If a ewe is at the point nutritionally and metabolically where ketone acids are starting to accumulate in the blood and tissues, it would seem that it might do more harm than good for the ewe to have forced exercise.

Poisoning, mostly plant poisoning, is a prolific cause of loss of sheep in early spring and in late summer after a spell of dry weather. There are about 75 plants in Kentucky (Indiana probably has as many) that will poison sheep if eaten, but most of the loss is due to hemlock, milkweed and ornamental shrubbery of which the most important is the yew tree which is commonly planted along the drive from the highway to the house. None of these poisonous plants is really palatable for sheep and they eat them only when driven to do so by the lack of suitable feed or by hunger for something green. Since these poisonous plants are largely the first to leaf out in the spring and stay green longest in a drought, they afford sheep about the only green forage available at those seasons. Keeping this in mind aids materially in making a diagnosis and in prescribing preventive measures. The latter, of course, consist in providing the animals with something to eat. It is truly remarkable how often supplying something for sheep to eat is advantageous in sheep raising. One could almost say that a sheep should have something to eat practically every day, just as a routine matter whether there is anything wrong with the flock or not! When sheep raisers are converted to the theory that sheep should be provided suitable feed in adequate amount they will avoid one-half of their present death losses from disease and parasites.

Another ailment of sheep that may puzzle the veterinarian the first time he sees it is what the sheepmen call "choking disease." It is of recent origin and the sheep men will tell one it is caused by phenothiazine. A good many farmers when giving phenothiazine in capsules or tablets will ram them into the tissues of

the neck instead of directing the medicament down the esophagus!

Heat stroke is an occasional cause of heavy losses in some flocks, usually flocks that are not given salt. It is surprising how many sheep owners think it is unnecessary to give their sheep salt or to supply it regularly. Perhaps this is why sheep sometimes eat nitrate fertilizer and are fatally poisoned by it.

Bighead is a plant allergy that requires a plant, which photosensitizes the animal, and

Big head showing blindness and necrosis of the skin of the face

hot sunshine. The remedy is to get the animal into the shade. The condition is easily diagnosed. It is characterized by an edematous swelling of the head with enlargement of the ears.

Lambs suffer from a number of ailments. When called to see an ailing lamb, or when the carcass of a dead one is brought in, eliminate first internal parasites and second starvation. Then look at the navel. Can pus be squeezed out of it? Navel-ill is common in lambs in filthy barns. They have abscesses in the liver, lungs, joints and central nervous system. No treatment is effective. Iodine applied to the cord at birth is a good preventive but a clean barn is a better one. When navel-ill is ruled out, examine the lungs. Pneumonia from chilling is common in lambs up to four weeks of age. Tetanus sometimes occurs in many of the lambs in a flock following castration. Stiff lambs may be wormy and hungry, or have tetanus, pneumonia, arthritis or heat stroke. Coccidiosis is sometimes reported but I doubt that it occurs as a disease entity in sheep in Kentucky. It may occur in feeder lambs in Indiana. Dysentery in young lambs is due to filth. The animals should be moved to a new barn and the udders of the ewes should be clipped. Nothing can be done for the affected lambs.

Enterotoxemia (pulpy kidney disease) occurs in lambs and ewes that are highly fed on good pasture, also in lambs on good pasture that are too liberally creep fed and in feeder lambs that arrive at the feed lot hungry and heavily parasitized. Some lambs won't eat at first; the others eat all the feed and after a few days are sick from overeating and stop eating. About this time the others begin to eat and they in turn eat all the feed supplied for the whole flock. After a few days they are engorged, stop eating and the cycle is repeated. If the carcass of a sheep dead of enterotoxemia is examined three or four hours after death, the kidneys will be found to be pulpy. There may be also a hemorrhagic gastroenteritis.

Foot rot in sheep can be prevented by trim-

In foot rot trim away all necrotic tissue then soak the foot in copper sulfate solution

ming the hoofs two or three times a year. The treatment consists of carefully trimming away all necrotic portions of the hoof and preparing a copper sulfate solution (2½ pounds to the gallon) in which the affected sheep can be stood.

Mastitis in ewes can be controlled by preventing injuries to the udder. Don't breed ewes that have diseased udders.

Abortion can often be prevented in sheep by that sovereign panacea I've mentioned so often. Just give them something to eat. Other causes of abortion in ewes are: vitamin A deficiency and infection with *Vibrio fetus* and with Listerella, Salmonella and Pasteurella organisms.

Pregnancy Toxemia in a Cow*

IN A former article[1] a comparison was drawn, from a clinical point of view, between the common acetonemia of lacation in the cow and pregnancy toxemia in the ewe.

This case would appear to form a sort of "missing link" between the two conditions.

It is recorded because it is only the second such case observed by the writer among several hundreds of lactation toxemias in the cow and the only case of its kind in which, owing to the death of the animal, it was possible to confirm diagnosis by autopsy.

History.—An old high-producing Jersey cow with an exceptional calving record, supposed by the owner not to be in calf, had been running for several months on rough uncultivated mixed bush and and marsh land near a marine estuary, which is partly flooded by salt water in winter.

In spring and early summer the feed on this land is fairly good but it will not maintain animals in good condition in autumn and winter. The herbage is largely rushes and sedges.

A fortnight before the cow was seen by the writer, the animal was said to have been in fat condition. It was then observed to be wasting rapidly, though still feeding well, until on 1st April it disappeared for two days into the bush.

It reappeared on 3rd April in a weak staggering state, lay down, and refused to eat, though it still drank eagerly. The owner carried water to the cow for three days and then, being anxious to know the cause of the illness, summoned the writer.

Symptoms.—To the surprise of all, when I arrived the cow could not, at first, be found, although the owner had thought the animal unable to rise.

After search the cow was discovered several hundred yards away, bogged in a small creek to which it had wandered in search of water. The cow was dragged out for examination. The symptoms were poverty of condition amounting nearly to emaciation, weakness, almost imperceptible, but rather rapid, pulse, temperature 100° F., and a breath reeking of acetone. The animal was unable to rise. On palpation of the floor of the otherwise hollow abdomen a fetus could plainly be felt. The animal refused to eat turnips or other tempting food but was very thirsty.

To the veterinarian used to bovine acetonemia the foregoing symptoms, considered in the light of the evidence that the cow had been fat a fortnight before, are quite definite proof of acetonemia. There is no other purely functional disorder of cows that will cause such rapid wasting of body fat. To meet the wishes of the owner destruction was postponed for a day to observe the effect of an intravenous injection of calcium gluconate. This treatment was without result.

Autopsy.—The cow was destoyed on the following day. On opening the abdomen an odor of acetone, so strong as to call for comment by the owner, was detected.

The liver presented the typical greyish-yellow appearance of pregnancy toxemia. There was still a fair amount of peritoneal fat present. A full-time, large and lively bull calf was found in a healthy normal uterus, but there was no dilatation of the os uteri.

Discussion.—The differential diagnosis of this case was interesting. It is common on poor farms in Tasmania in winter to observe cows heavy in calf suffering from a form of paralysis associated with malnutrition due to prolonged feeding on oaten chaff and little else. The affected animals eat well but cannot rise, and in most instances have to be destroyed in the end owing to progressive weakness and emaciation. Only exceptionally does the animal survive to calve and recover the use of its limbs.

In these cases, many of which have been observed, there is no marked odor of acetone and no anorexia such as, more or less, one invariably finds in a case of profound acetonemia.

Consequently such cases do not appear to be related to the acetonemia of lactation.

The fact that this cow walked a quarter of a mile, that her breath reeked of acetone, that there was complete anorexia but no paresis, puts this case in quite a different category.

It seems likely that when the cow first disappeared she had gone into the bush under an impulse to calve but that, owing to the profound acetonemia, this could not occur. In ruminants a profound acetonemia seems to throw not only the action of the liver but other glandular mechanisms out of gear.

In the only other instance of profound acetonemia in a cow near to calving I have observed, however, the cow did manage to calve and it ultimately recovered, but did no good in that lactation.

It may be significant that this latter animal had been treated from the first appearance of illness, as for acetonemia and hypocalcemia.

*Reprinted from the *Austral. Vet. J.*, 21:2, p. 38. 1945.
[1] Rainey, J. W., *Austral. Vet. J.*, 19, p. 111. 1943.

Both calcium borogluconate and dextrose were injected intravenously and molasses in two-pound doses was given by the mouth on several successive days.

It is at least possible that if the cow which is the main subject of this note had similarly been treated from the first appearance of the symptoms the fatal ending might have been averted.

It should also, perhaps, be mentioned that destruction for the purpose of autopsy was by shooting with a small calibre bullet to avoid much hemorrhage, in order to ensure that the vitality of the calf *in utero* would be unaffected by the time the abdomen was opened.

The subject of this report could not calve and thus was in exactly the same predicament as the ewe with pregnancy toxemia and suffered the same fate.

Why are instances of pregnancy toxemia in the cow so rarely reported? It may be partly because cows in fat condition far advanced in pregnancy are seldom starved.

The environmental factors in this case were most exceptional. Though common enough with pregnant ewes, it rarely happens on a Tasmanian farm that a high-producing cow in fat condition, near to calving, is suddenly thrown upon her own nutritional resources and thus forced to maintain the fetus from her own tissues.

A succession of dry winds and early hard frosts had "perished" what little nourishment remained in the marsh pasture, so that the cow was practically starving.—*J. W. Rainey.*

Effective Wound Treatment

Tyrothricin, which as readers know, is an antibiotic product of the *Bacillus brevis* containing a mixture of gramicidin and tyrocidine, is acquiring popularity in medical practice as a topical application for infected wounds.

Tyrothricin is bactericidal for gram-positive organism, including such common wound infections as, staphylococci and streptococci. It is used in the form of drops, instillations, irrigations and wet dressings. It is actively poisonous internally and should not be used orally or parenterally. A concentration of 33mg per 100cc of solution is said to be satisfactory for general application but stronger solutions may be used against resistant strains of organisms.

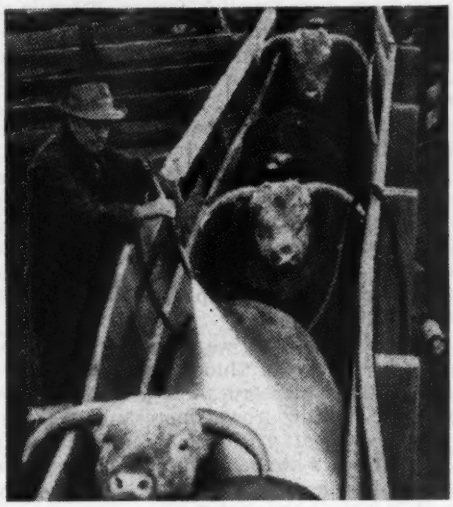
Tyrothricin is extolled in the treatment of ulcers, eye, ear, nose and throat infections, sinus infection, empyema, abscesses, etc. Where practicable wet compresses are favored; where application is by irrigation, drops, infusion, etc., as in the treatment of sinus infections and ophthalmic infections, application should be at least four times daily and better at shorter intervals.

In veterinary practice tyrothricin has been largely used in mastitis treatment but much less as a topical wound application.

A New Spray Mixture for Cattle Ticks

After 110 experiments over a period of three years conducted by Dr. Robert L. Squibb, Division of Animal Industry of the Interamerican Institute, announcement has been made of the use of a DDT and rotenone mixture as a spray for the control of cattle ticks.

It is expected that the spray will be an efficient method for such control in tropical areas where dipping has not been very successful



When a parasiticide is directed on to the backs of cattle with a 400 pound pressure spray it passes through the hair, blows away the dirt and kills the ticks

because of scarcity of even poorly designed but costly dipping vats, and of the high mortality resulting from distant transportation of cattle and oxen to the vats and of untrained personnel in charge, etc.

One hundred cubic centimeters of the solution is sufficient, used as a fine spray, to cover an animal—the cost being as little as one-half of a cent per animal. Various types of spraying equipment seem equally effective. The tick mortality has been as high as 95% on animals with an infestation of as many as 40 ticks per square inch. Length of effectiveness depends on weather conditions but it continues to give protection up to 80 days. No toxic reactions have been manifested in 7,000 applications over a period of nine months.

A Veterinarian's Experiences on the Roof of the World

By CAPTAIN RICHARD A. SHEA
Oklahoma City, Oklahoma

OUR first shot with the carbine gave us a duck dinner that was truly delicious, but we didn't discover until later that we had devoured the reincarnation of a Tibetan who, in a previous life, had been a rather important person. To the natives, this beautifully marked bird (the ruddy sheldrake) is sacred.

Probably few "foreigners" have ever imagined they might someday find themselves in Tibet. Certainly as I went about the daily duties of a practice in Oklahoma City, no thought of ever being in this land of snow-covered peaks and shaggy, slow-moving yak crossed my most fanciful horizon. Tibet is as nearly isolated (mentally as well as geographically) from the rest of the world as it is possible for any region to be, especially in 1945. Its people, their customs and the all-dominating religion of lamaism have changed but imperceptibly during many centuries.

We landed here early in March, after a few hours in a plane. The question may be asked, "When there's a war on, why should a few soldiers be permitted to take "time out" to see fringes of Shangri-La and to visit the strange realm of a people scarcely touched upon in literature."

The reason is clear: we were to select horses for pack use by the Chinese Army. The "field of operations," it's true, was a long distance from the fighting front, where animal transport is essential. The members of our party were so excited at the prospects for adventure when told where we were going, that none of us thought much about future problems.

To describe the country accurately is impossible. An American thrust suddenly into practically "another world" can only give his first impressions and set down a few incidents which have high-lighted the past few months. One can write of comparisons and contrasts among peoples and customs in his own world but when it comes to describing another world one lacks a foundation upon which to build his structure of words.

From a base (consisting of one pyramidal tent) near a small emergency airstrip three officers and several enlisted men have been engaged in procuring as many serviceably sound horses and mules as possible. Years of warfare have depleted the supply of horses in many sections of China. Hence, great numbers of animals must be obtained in areas far-distant from where it would be more practicable to buy them were they available.

Speed is desired above all else in this assignment, but when it is necessary to travel by horseback, with yak to carry one's supplies on the trail week after week, it can readily be understood that patience is paramount for accomplishment.

Buying, branding, shoeing, feeding and caring for pack stock until it reaches Chinese Army units in forward areas is only part of the task; personnel of the Sino-American Bureau (S.A.B.) are also responsible for getting the newly-bought animals to where they are needed. Trucks or trains are not usable in this land so simply driving the animals for hundreds of miles is the answer. Natives are hired as "wranglers," and one or more Americans accompany each group along the long, long trails leading to military careers for the animals.

There are counterparts to our small group in other parts of China, but the purpose of the Chinese and Americans in the S.A.B. is the same wherever they are working: to secure animal transportation for the Chinese Army.

Meetings with district and village officials precede the examination of horses offered for sale. Fair prices, and the probable number of animals that can be procured in the area are the topics discussed. At a typical "conference," both parties sit cross-legged on thick rugs, sipping yak butter-tea from silver bowls. If the head-man happens to be well-to-do, hot yak milk is the proffered beverage. Milk is scarce except during the summer months, most of it being made into butter or cheese.

At a day decided upon, all horses from the nearby districts are brought to a place designated by the head-man. If, upon inspection, an animal is qualified for soundness, we make a note of its worth (in tea or silver). The seller is paid as promptly as possible, after which a Preston brand is applied to the left side of the animal's neck.

Corrals are unheard of, so Tibetan horse-handlers simply herd the animals where grazing is good; when a sufficient number have accumulated, the "drive" is begun. Horse thieves sometimes cause trouble but, to date, we have been fortunate in losing comparatively few animals by theft. If a horse strays or dies en route to the initial stopping place, the Tibetans must produce a large section of the skin of the neck containing the brand

number of the missing individual. The American who happens to be overseeing the movement of the group then records the circumstances of the loss.

Since we arrived in March, most of the snow has melted and new grass has replaced the dead brown landscape of winter and early spring. Herds of yak often numbering several thousand, graze and grow sleek on the lush valley and great rolling hills of the "grasslands." An American rancher would receive a thrill gazing out at the sights afforded from the yet higher passes, some of which are at an elevation of 17,000 feet.

Nights are usually cold enough to require five or six blankets for comfort. The Tibetans just curl upon the ground, wrapped in their coarse wool "togas" or skins, and sleep as soundly as a foreigner sleeps on a bed. There are no mosquitoes, but plenty of lice and similar vermin to cope with, whenever it's convenient to stay overnight at a house.

An age-old method by which officials and civil servants can proceed from place to place, is known as the "ullah" (woolah) system. Each family must furnish horses and yak, as well as men, women and children to transport these "essential" persons. A very small fee is given the "ullahs," and the difference between what they are paid and the regular open-market rate for hiring animals is deducted from their taxes. As most of the people are extremely poor, doing "ullah" duty is the only method by which they can handle their dues to their rulers.

During our trips of from a few days to many weeks, sights strange to Occidental eyes have greeted us. Among the unusual was that of two "pilgrims" we recently passed on the trail. These pilgrims were gaining great religious merit by crawling to their sacred capital, Thasa. The process by which they were adding to their stature (in the eyes of their gods and high lamas) consisted of prostrating themselves face downward on the ground, scratching the earth as far ahead of themselves as they could reach, rising, stepping to this mark and again falling prone. Repetition of this routine daily for months and even years is extremely deleterious to one's anatomy, especially since the percentage of rocks to soil in Tibet is unusually high. Therefore the fanatic wears a pad on his forehead, heavy leather gloves and an "apron" of yak hide over his chest and abdomen. The two men whom we observed had been travelling in this fashion each day for over six months; for them to reach Thasa, three more years will be required! For religious fervor, I doubt if we in the United States can equal such an example.

Those who walk to Thasa acquire much less merit than do zealots of the above mentioned sort, while the horseback riders rank very low indeed. Because of the impossibility of carrying one's food on such a journey, begging is resorted to by practically all pilgrims. Results are excellent, as those who donate barley flour and tea to such worthy souls are likewise blessed by the gods.

Butchers are held in low esteem by most Tibetans. Their method of dispatching a yak, sheep or goat is to tie the animal's feet together, throw it to the ground in lateral recumbency and grasp the trachea firmly in the hand. A cord of raw hide is necessary to accomplish the strangling if the victim is fairly large. It is a sin to take life, according to Buddha, so instead of using a knife, suffocation is resorted to; the Tibetan believes he is acting humanely and cannot be convinced otherwise.

Fresh beef, which always means yak-meat, is plentiful. From personal experience, we can say that a grass-fed yearling yak heifer produces as tasty steaks as we've ever eaten.

"Yeh'mas" are small wild horses found in the hills of this area. We have seen several bands from a distance. "Blue sheep" are difficult to approach within shooting distance unless one is on the crest of the slopes. These big goats are prized by hunters; "when the work's all done this fall" we plan to go up after one.*

Musk deer abound, and there are several other varieties as well. Trade in musk was formerly brisk, but since the war has cut off coastal points of export, the business has declined. Bears' paws, antlers from deer and elk, marmots (skinned and flattened out as if they'd been run over by a truck) and various sorts of bones are valued as medicines but, as a curative for practically everything, musk still rates first.

Native horses have amazing endurance; a 600- or 700-pound animal will carry a 200-pound load all day over mountains and steep grades without even blowing hard. We always look for the biggest horses to ride, as our consciences are easier when we're mounted on a "giant" 800-pounder.

The high altitude of Tibet is conducive to sound sleep, but it also seems to dull the mental processes. We are chronically drowsy, especially while crossing passes of from 15,000 to 17,000 feet elevation. At present, an enlisted man and myself are located in a "village" over

*Note.—Captain Shea did not get his Tibetan mountain goat, since VJ-Day brought about the termination of his horse procurement mission September 26th, 6 months and 13 days after he landed in Tibet. He received the award of a Bronze Star for meritorious service in the performance of duty on this assignment.

14,000 feet above sea level; this town consists of a lamasary and a lone government building —a square two-story "fort" of mud and heavy timbers at the edge of an extensive valley. Now, more than ever before, it's a chore to crawl from our blankets into cold, gray dawn.

Horses are fed grain in only a few areas. Barley is the "staff of life" for the Tibetan, the roasted grain being ground into flour called "tsamba." Dogs and, in emergencies, horses are fed this same tsamba. On a trip, the only feed requisites are a leather bag of tsamba, some yak butter and a little tea. The natives each carry a wooden bowl in which to mix the flour, butter and tea into a ball of dough slightly smaller than a man's fist. Meals are frequent, and it is necessary to stop every few hours on the trail for "tea."

In some northern areas, raw dried beef and hard cheese is given to horses in the winter as little or no pasture is available.

Shoeing is seldom practiced and, if the fore feet are shod, preliminary trimming of the hoof is unheard of. For protection against rocks, the ends of the shoes are bent up over the bulbs of the heels.

The Tibetan fancies himself quite a horseman, but places his high, rug-covered saddle far back over his animal's loins. Hence, the odd shuffling gaits one sees in riding stock. Stirrups are jockey-length, or less, but the Tibetans prefer them this way. For beauty, manes are braided and tails usually have several knots in them tied with red cloth. A man has little "position" unless his horse carries a brass bell around its neck. Bridles are decorated with brass and silver, old coins being popular for this purpose. The native never dismounts while on the trail; no hill is too steep for his steed, he thinks. We do not share this belief, so doubtless Americans are considered queer people, or else gluttons for walking over mountains.

Yak steers are the sole pack animals. Practically the only cargo carried by these great, slow-but-sure beasts is a special kind of tea considered essential by the Tibetans. It is encased in skins, each rectangular bundle weighing 72 pounds. An animal carries a bundle on each side. Pack trains of yak move from the interior of Tibet to China and India, bringing salt, hides and wool to the border country. A crossbred animal known as the "udso" has been developed from native yak and imported beef and dairy cattle. The "udso" is smaller and has less hair and lighter horns than the rather headstrong yak. His chief advantage is his greater docility, but milk production has also been increased by the introduction of cattle from the outside world.

Yak cannot withstand altitudes of less than 8,000 feet. These grunting, teeth-grinding cattle thrive best at from 10,000 to 17,000 feet. Riding yaks are a great boon to mountain travellers because of their strength and surefootedness. A day seldom passes without our sighting several steers, each carrying on his back, a red-robed lama or a more quietly dressed layman. We have yet to compare their riding qualities with those of the horses.

Tibetans are essentially simple and friendly. They love to laugh and do a lot of it, especially when there are a dozen or more persons gathered together. Besides the few wealthy merchants and traders, there are three classes of people in Tibet. The lamas, or priests, are numbered in thousands. They hold a special place and have power comparable to that of dictators. The bulk of the scanty population is made up of the nomads and the farmers.

The nomad is truly a free man; he pays no taxes, moves wherever and whenever he desires and lives entirely from the yak he owns. Beef, butter, cheese, hides, hair and transportation —the wandering yak herder needs nothing more. His house is portable, a six-sided black tent of yak hair which sheds rain adequately, if not completely. When the family is moving to new grazing grounds, babies are loaded into "cribs" made of skins and poles; these travelling compartments for youngsters are then lashed to one-half of a yak pack saddle and the small fry is on the way.

Children are raised on tsamba, dairy products and semi-raw beef from the time they are weaned, and we've never seen huskier kids anywhere. Fuel is dried yak dung, as trees are almost non-existent on the plateaus. A bellows of goatskin attached to a crude metal pipe is effective in keeping the coals hot. We have attempted to operate this "blower," but any five-year-old Tibetan boy or girl can produce a better blast of air with it. So in the future, we intend to leave this job to them.

Agricultural people live in large, box-like community houses of rock or mud. All homes are similar to Pueblo dwellings, with flat roofs of mud for threshing and curing hay. Very frequently a corner will be built up as an observation post; the fear of robbers is deep-seated in the farmers. Watch towers of stone are located strategically on the nearby hills. Some of these interesting structures are several hundred years old, bearing the scars of former battles and of the weather.

The homes of the permanent settlers have only tiny slits in their thick walls for windows. Smoke from the kitchen blackens the ceiling of every room until the timbers resemble beams dipped in pitch. The ground floor is for live-

stock, the second story for storing grain and meat and the top level serves as living quarters for the owner and his family. A heavy post with notches for steps serves as a stairway between the floors. It can be pulled up whenever unwanted visitors appear. Extra rooms for travellers can invariably be found, although community sleeping, with all ages and sexes huddled together on the floor, is not uncommon.

Yak cream, or clabber to which brown sugar has been added, makes a tasty dessert; however, the custom is to serve such delicacies as appetizers prior to a feast of raw beef or boiled venison with a wooden dasher-type churn for incorporating the butter with the strong, boiled tea, one possesses all the necessities for a really satisfying meal.

Turquoise is the stone most prized by the natives. It is used in earrings, finger rings and neck pieces. A woman without heavy silver earrings isn't to be found, and most men wear a weighty piece the dimensions of a bull ring in the left ear only.

Silver coins, coral and amber, add glamour to the long, braided locks of Tibetan girls. The styles in women's "hair-dos" vary with the district. In one locality, black thread is spliced into the braids of milady until the strends extend below her waist. This mass of tresses is gathered into a knot and fastened to the woman's girdle at the back.

Guns rate first in the interest of the men. Swords, knives, horses and women follow. Of course, this order may vary in some instances. The writer is merely an observer without statistics to support his observations. Tibetans are excellent shots, even with their ancient rifles of Chinese and Russian origin. Ammunition is scarce and expensive—a good reason for making every shot count.

We're definitely "sold" on the Tibetans working with us. We like them and respect them. From their good-natured grins and their frequent shouts of "O.K." and "Let's Go!" it is suspected the feeling is mutual.

Citation for Legion of Merit

Colonel Jesse D. Derrick, VC, while serving as Veterinarian of the First Service Command, December, 1943, to October, 1945, distinguished himself by reorganizing the Veterinary Service and adapting it to the rapidly expanding needs of the Food Procurement Program. His knowledge of multitudinous details in the procurement, storage, and inspection of meats, processed foods and dairy products assisted civilian producers in meeting promptly and completely the demands of high Army standards. Through broad understanding of producer's problems and superb tactfulness in the solution of problems, Colonel Derrick materially aided in the progress of the war effort at inestimable savings to the Government. His selfless devotion to duty and his inspiring leadership contributed immeasurably to the accomplishment of the mission of the First Service Command and reflect great credit upon himself and the Military Service.

Meritorious Service Award

In recognition of its work in meat and dairy inspection for the Armed Forces during World War II, the U. S. Army Veterinary Detachment stationed at the Chicago Quartermaster Depot was awarded the Meritorious Service Unit Plaque, for superior performance of exceptionally difficult tasks and the maintenance of a high standard of discipline. Presentation of the plaque was made to Colonel Frank M. Lee, Depot Veterinarian, by Brig. General Raymond R. Kelser, Chief of Veterinary Service, Surgeon General's Office, in a brief ceremony at the Depot.

Since July, 1941, when the Army centralized its procurement system, the veterinary detachment has been a pivotal factor in the tremendous buying activity in the Chicago Stockyards and Fulton Market area. During the war the unit expanded from its peacetime strength of two officers and five enlisted men to become the biggest veterinary outfit in the Army—reaching a peak strength of 72 officers and 171 enlisted men on duty in Chicago and throughout Michigan, Wisconsin and Illinois, inspecting foods of animal origin for the Army, Navy, Marine Corps, Coast Guard, Veterans' Administration, War Shipping Administration and other Government agencies.

Indicating the enormous growth in war procurement of subsistence supplies, the monthly pre-war average of meat and dairy products inspected by the unit was 9,680,000 pounds. During the year following the outbreak of hostilities, the average passed poundage reached 90 million pounds monthly. In 1943, the average passed poundage per month increased to 142,813,097 pounds. During July, 1945, peak month of procurement, total inspection passed 205 million pounds.

Medical Department enlisted men assigned to the unit were highly qualified. Approximately 50% of them had college training, and two-thirds had previous business and inspection experience in the meat and dairy fields.

The detachment also includes the Meat and Dairy Hygiene School, where over 900 veterinary officers received advanced training in meat and dairy inspection during the emergency period.

R. A. Veterinary Officers Retired Since Late War Began

Colonel Robert J. Foster, 65, CORN '02, entered the Army as veterinarian with the 12th Cavalry 30, Aug. 1905, being the second veterinarian assigned to this regiment after its organization. He served with this regiment at Fort Oglethorpe, Ga., Fort William McKinley in the Philippines, Fort Robinson, Nebr., Fort Meade, S. D,. and Harlingen, Texas. In November, 1915, he was transferred to the 9th Cavalry and proceeded with his outfit to Camp Stottsenburg in the Philippines. He was commissioned assistant veterinarian with rank of 1st lieutenant May 8, 1917, with rank from 3, June 1916 and promoted through the grades, attaining the permanent rank of colonel on 30, Aug. 1931. Colonel Foster returned from the Philippines in February, 1918, and was assigned to organize and command the veterinary section of the medical officers' training camp at Fort Riley, Kans. In August of that year he was transferred to duty in the Veterinary Division of the Surgeon General's office. While on this duty he directed the reorganization of the Veterinary Corps under the amended national defense act of 4, June 1920. In November, 1920, he was sent to Germany for duty as Chief Veterinarian, Army Forces, in Germany, with headquarters at Coblenz. He returned to the United States in 1922 and was assigned to the Cavalry School at Fort Riley, Kansas, in charge of veterinary instruction. During his four years at the Cavalry School, Colonel Foster is credited with greatly improving the course in animal management. For this he received the official commendation of the Commandant, General Malin Craig, later Chief of Staff of the War Department General Staff. In 1926 Colonel Foster went to Panama for a tour of duty and, upon completion of this duty, was assigned to Fort Omaha, Nebr., and later to Fort Bliss, Texas. 3, May 1934, he returned to the Surgeon General's Office for duty as Chief of the Veterinary Division.

COLONEL ROBERT J. FOSTER

It was upon Colonel Foster's recommendation that food inspection was established in the Civilian Conservation Corps and in which more than 100 veterinary reserve officers were employed. He was assigned to the Headquarters Ninth Corps Area upon leaving the Surgeon General's Office in 1938 and was Service Command Veterinarian of the Ninth Service Command, with station at the Presidio of San Francisco at the time of his retirement, 30, Sept. 1944. Present address: 670 W. 42nd Avenue, San Francisco, Calif.

Before entering the Army Colonel Foster was an instructor in Clemson College (S. C.), the University of Missouri and the Kansas State College. In 1936 Colonel Foster was elected president of the A.V.M.A. He presided at the Omaha Meeting of the Association in 1937.

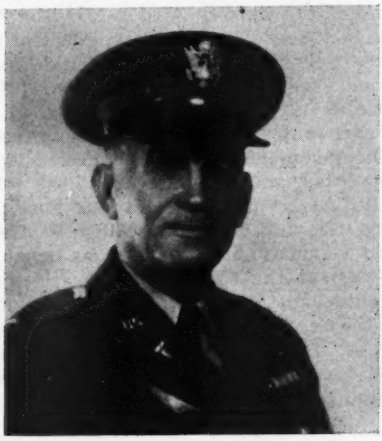
Colonel George H. Koon, 64, GEO WASH '11, entered the Army service as Veterinarian 27 Sept. 1911, assigned to the 10th Cavalry at Fort Ethan Allen, Vt. In 1913 he transferred to the 7th Cavalry in the Philippines, and in 1916 to the 12th Cavalry on Mexican Border duty in New Mexico. Upon the organization of the Veterinary Corps he was commissioned a 1st lieutenant and promoted through the grades attaining the permanent rank of colonel 27 Sept. 1937. Early in 1917 he went on duty with Remount Service, El Paso, Texas, and later in that year as Division Veterinarian, 82nd Division, Camp Gordon, Atlanta, Ga. In December, 1917, he was transferred to the 32nd Division as Division Veterinarian and accompanied that organization overseas. Upon arrival in France he was detached for temporary duty with the Remount Service "in

connection with the purchase of animals from the French." Rejoining the 32nd Division, he served as Division Veterinarian in the St. Mihiel and Meuse-Argonne offensive. He was next transferred to the III Corps (1st, 2nd and 32nd Divisions), serving as Corps Veterinarian in the only Corps to cross the Rhine. Returning from overseas, Colonel Koon was assigned to duty as Division and Station Veterinarian, 4th Division, Camp Dodge, Des Moines, Iowa,

COLONEL GEORGE H. KOON

and temporary duty at Chicago Depot as a special student under Major George Lytle (December, 1919). In January, 1920, he was assigned to duty in the Veterinary Division, Office of The Surgeon General, Washington, D. C., and while there assisted in the preparation of most of the regulations, and tables of organization and equipment, under which the Veterinary Corps has since operated. For a long period he was Editor of the *Army Veterinary Bulletin*, published from the Surgeon General's Office, which contained much material of great aid to younger officers in their examination for promotion. Following the tour in the Office of the Surgeon General, he was assigned to the Medical Field Service School, Carlisle Barracks, Pa., and there gathered the source material and compiled Medical Department Bulletin No. 19, The Veterinary Service, being a complete detailed description of the service, its organization, equipment, functions, training, operation and administration. As a result of this he was designated as one of the Medical Department officers to attend The Command and General Staff School in 1926, graduating in 1927, following which he served as Station Veterinarian, Fort Leavenworth, Kansas, until 1929, when he was transferred to the Army Medical Center, Washington, D. C., as Commandant of The Army Veterinary School, being the last officer to serve with such designation. In November, 1931, he was again in the Philippines, serving as Department Veterinarian until October, 1934, when he was assigned as Corps Area Veterinarian, 8th Corps Area, Fort Sam Houston, Texas. March, 1939, he was assigned as Corps Area Veterinarian, 1st Corps Area (later designated Service Command), Boston, Mass., and in addition as Depot Veterinarian, Boston Quartermaster Depot. In December, 1943, he was transferred to Fort Lewis, Washington, as Station Veterinrian, and in January, 1944, to Los Angeles, California, as Commanding Officer, Army Veterinary Detachment, from which duty he was retired for age 31 Jan. 1945. During World War II, until his retirement, Colonel Koon was in charge of the training of veterinary personnel, officer and enlisted, for overseas duty in the New England and Southern California areas, and of inspection at procurement by veterinary personnel of food supplies purchased by the Quartermaster Market Centers for use of the Army and Navy and other Governmental agencies. Present address: 51 Inverness Drive, San Francisco, Calif.

Colonel Daniel B. Leininger, 66, KCVC '06, entered the Army as veterinarian with the 12th Cavalry 25 Sept. 1911. He was on duty with the 7th Cavalry, Camp Stewart, Texas,



COLONEL DANIEL B. LEININGER

when he was commissioned assistant veterinarian with the rank of first lieutenant 4 April 1917 under the Act of 3 June 1916. He was promoted through the grades, attaining the permanent rank of colonel 29 Sept. 1937. He was graduated from the Army Veterinary School in 1920 and from a post-graduate

course in 1936. Colonel Leininger gained wide recognition in the treatment and prevention of lameness. In consequence of his wide knowledge and experience he was appointed senior instructor at the Mounted Service School, Fort Riley, Kans., 1917 to 1920. He served two tours of foreign duty in the Philippines and also tours of duty at Camp Harry J. Jones, Ariz.; Camp Marfa, Texas; Presidio of Monterey, Calif.; Fort Sill, Oklahoma; and Fort Bliss, Texas.

Always a lover of good horseflesh, Colonel Leininger has been an outstanding participant and exhibitor in horse shows wherever he has served. At both Fort Bliss and Fort Sill he was honorary veterinarian of the hunt clubs and at Fort Ord, Calif., where he was stationed at the time of his retirement for physical disability 30 June 1943, he was M.F.H. of the hunt club. A formal review of the troops at Fort Ord was given in his honor on the last day of his active service. Present address: Carmel, California.

Colonel Burlin C. Bridges, 52, CVC '15, was commissioned 20 June 1917 and promoted through the grades, attaining the permanent rank of colonel 19 July 1943. He was graduated from the Cavalry School, 1930, the Army Veterinary School, 1931 and the Medical Field Service School, 1931. During World War I, Colonel Bridges served with the AEF in France. In 1920, he was assigned to duty with the Remount Purchasing Headquarters in Oklahoma. In 1925 he was transferred to Fort Bliss, Texas, and later served at the following stations: Fort Riley, Kansas, Fort Oglethorpe, Ga., and Fort Ethan Allen, Vt. He also served a tour of duty in Hawaii, as Depot Veterinarian at the Front Royal Quartermaster Remount Depot, Va. He was Army Veterinarian with the Second Army, Memphis, Tenn., at the time of his hospitalization preceding retirement. He was retired for physical disability, 30 June 1945.

Colonel William H. Dean, 54, UP '17, served an enlistment in the Army, 1908-11 and was commissioned 16 July 1917 and promoted through the grades, attaining the permanent rank of colonel 8 Aug. 1943. He was graduated from the Cavalry School, 1927 and the Army Veterinary School, 1932. He served consecutively at Camp Furlong, N. M.; Camp Pike, Ark.; Fort Jay, N. Y.; Camp Jackson, S. C.; Fort Benning, Ga.; Camp Jackson, S. C.; and Jefferson Barracks, Mo. In 1925 he was ordered to duty at Fort Riley, Kans., where he served as Station Veterinarian and instructor until 1930. Following a two-year tour of duty at Front Royal, Va., in 1934 he was sent to China. Upon his return from foreign duty, in 1937, he served at the Presidio of San Francisco; Western Remount Area Headquarters, San Mateo, Calif.; and the 30th Veterinary General Hospital, Fort Bliss, Texas, going overseas late in 1942. While serving with the General Staff Corps, Headquarters Services of Supply, North African Theater of Operations, he was awarded the Legion of Merit for exceptionally meritorious conduct in the performance of outstanding service. In 1944, upon his return from overseas, he was assigned to duty at Headquarters Army Service Forces, Washington, D. C., and was retired for physical disability, 30 Sept. 1945. Present address: 3545 Filmore St., San Francisco.

Colonel William H. Dean (right) receiving the Legion of Merit award for outstanding service in the North African Theater of Operations

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Colonel Mott Ramsey, 58, MCK '16, was commissioned 30 June 1917, having previously served one year as veterinarian with the Quartermaster Corps. He was promoted through the grades attaining the permanent rank of colonel 11 July 1942. He was graduated from the Army Veterinary School, 1922. A large part of Colonel Ramsey's service was at Fort Sam Houston, Texas, having served three tours of duty at that station. He also served at the Chicago Quartermaster Depot and at Jefferson Barracks, Mo. In 1923, Colonel Ramsey was

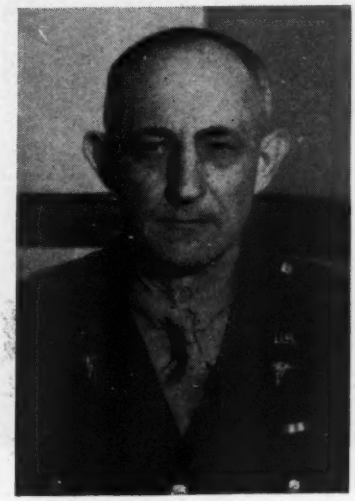
assigned to a tour of duty in the Philippines. He was again on duty in the Philippines in 1941, and at the time of the surrender of Corregidor was evacuated to Australia and later to the United States. He was retired for disability incident to this service, 31 December 1943. Present address: 435 Elmhurst Ave., San Antonio, Texas.

Colonel Elwood L. Nye, 53, COLO '14, was commissioned 3, April 1917, and was promoted through the grades, attaining the permanent rank of colonel 24, March 1943. He is an honor graduate of the Army Veterinary School (1920) and of the Medical Field Service School (1930), where he received the Skinner Medal for the highest general standing in the class. Colonel Nye's first assignment upon entering the service was in the Hawaiian Department. Upon his return in 1920 he was assigned to duty at the Presidio of San Francisco, thence to Fort Brown, Texas. In 1926 he was assigned to the Surgeon General's Office, Washington, D. C., as assistant to the chief of the Veterinary Division, and upon completion of this tour of duty he was again assigned to the Presidio of San Francisco; later serving at Fort Meade, S. Dak., 1935 to 1939, and at West Point, New York, 1939 to 1942, when he was assigned to Fort Lewis, Washington. Colonel Nye has been on duty at Carlisle Barracks, Pa., since 1942. His retirement for physical disability will be effective 31, Jan. 1946.

Colonel Harry L. Watson, 53, GR RAP '16, was commissioned 9 Oct. 1917, and promoted through the grades, attaining the permanent rank of colonel 18 July 1944. He was graduated from the Army Veterinary School, 1922. He served at Camp Shelby, Miss., Camp Jackson, S. C., Camp Uton, N. Y., and Camp Gordon, Ga. He served tours of duty in the Philippines, in Hawaii and at various stations within the United States, including Fort Francis E. Warren, Wyo., Colorado Springs, Colo., Fort Sill, Okla., Fort Huachuca, Ariz., and Fort Lewis, Wash. In 1943 he was assigned to duty in the South Pacific. He returned to the states the latter part of December, 1944, due to physical disability, and was retired 30 April 1945. Present address: 1134 Culver St., Phoenix, Ariz.

COLONEL HARRY L. WATSON

Colonel Fred C. Waters, 58, OSU '12, was commisioned a lieutenant in the Veterinary Reserve Corps 5, July 1917 and ordered to active duty at Fort Oglethorpe, Ga., 30, July 1917, and was promoted through the grades, attaining the permanent rank of colonel 30, July 1943. He was graduated from the Army Veterinary School and the Medical Field Service School in 1929. In June 1919 Colonel Waters was transferred to ARD 329, Camp Travis, Texas, where he served for one year. Following duty at Fort Reno, Okla., and Fitzsimons General Hospital from 1920 to 1921 he was sent to the Philippine Department. In 1922 while still on foreign service he was assigned to duty as veterinarian with the China Expedition. Upon his return to the United States in 1923 he was assigned to duty at Camp S. D. Little, Ariz. In 1929 he was transferred to Presidio of Monterey, Calif. Following duty at Seattle Quartermaster Depot from 1931 to 1938, Colonel Waters was again assigned to



COLONEL FRED C. WATERS

duty in the Philippine Department where he served two years. Upon his return to the United States in 1940 he was assigned to duty as Depot Veterinarian, Chicago Quartermaster Depot, at which station he was serving at the time of retirement for physical disability which will be effective 31, Jan. 1946.

Colonel Frank H. Woodruff, 52, CORN '17, was commissioned 16, July 1917, and promoted through the grades, attaining the permanent rank of colonel 3, Aug. 1943. He was graduated from the Army Veterinary School, 1925 and the Medical Field Service School, 1925. Following a tour of duty in the Philippines from 1919-22, Colonel Woodruff served at Camp Dix, N. J.; Edgewood Arsenal, Md., and Fort Hoyle, Md. In 1929 he was assigned to duty in China, following which he was on duty at Fort Bliss, Texas, for four years. In 1935 Colonel Woodruff was assigned to duty with the Headquarters Third Corps Area Baltimore, Md., as Corps Area Veterinarian, thence to Fort Sill, Okla., and Fort Oglethorpe, Ga., returning to Headquarters Third Service Command, Baltimore, Md., in August, 1942, as Service Command Veterinarian. He was retired for physical disability, 30, Sept. 1945. Present address: Fitzsimons General Hospital, Denver, Colo.

COLONEL FRANK H. WOODRUFF

Colonel William H. Houston, 64, USCVS '17, was commissioned 1 June 1917, and promoted through the grades, attaining the permanent rank of colonel 27 Nov. 1939. He was graduated from the Army Veterinary School, 1921 and served as attending veterinarian and assistant to the attending veterinarian, Washington, D. C., from 1922 to 1925, when he was transferred to Fort Reno, Okla. He also served a tour of duty in Hawaii and the Philippines. Upon his return from the Philippines in 1936 he was assigned as Corps Area Veterinarian, Fifth Corps Area, Columbus, Ohio, and was on duty at Headquarters Fourth Service Command, Atlanta, Ga., as Service Command Veterinarian from September 1940 to 30 April 1945, at which time he entered upon terminal leave pending retirement 30 Sept. 1945.

Colonel Kenneth E. Buffin, 57, GEO WASH '16, was commissioned in the Veterinary Reserve Corps 15, May 1917, called to active duty 11, June 1917, and promoted through the grades, attaining the permanent rank of colonel 11, June 1943. He was graduated from the Army Veterinary School, 1929, and from the Medical Field Service School, basic course, 1929, advanced course, 1936. From 1917 to 1921 Colonel Buffin served short tours of duty at various stations within the United States. In 1921 he was assigned to Camp Travis, Texas, where he served three years. Following duty at Fort Meade and Fort Des Moines from 1924 to 1928 he was assigned to the Philippine Department. Upon his return to the United States in 1930 he was assigned to duty at Fort Sam Houston, Texas. In 1935 Colonel Buffin was assigned to Carlisle Barracks, Pa. In 1939 he was sent to the Hawaiian Department for a tour of duty. Upon his return from foreign service, in 1941, he was assigned to Fort Belvoir, and was on duty at Camp Blanding at the time of his retirement for physical disability which will become effective 31, Jan. 1946.

Lieut Colonel Charles S. Greer, 44, ISC '26, was commissioned 7, Oct. 1927 and promoted through the grades to the permanent rank of major 10, Oct. 1939 and to the temporary rank of lieutenant colonel 12, June 1942. He was graduated from the Army Veterinary School, 1929 and the Medical Field Service School, 1929. He also pursued a course of instruction in animal breeding at the University of Kentucky. His first station assignment was Fort Bliss, Texas. After a tour of duty in Hawaii he served at Fort Robinson, Nebraska, Fort Riley, Kans., and Fort Leavenworth, Kans. In July 1940, Colonel Greer was assigned to duty in the Veterinary Division, Office of the Surgeon General, Washington, D. C. Upon his relief from this duty he was assigned to the Reno Quartermaster Dept (Remount), Fort Reno, Okla. He was on duty at the Pomona

Quartermaster Depot (Remount), Pomona, Calif., at the time of his retirement 31, Jan. 1945. Present address: 17 East 26th St., Tulsa, Okla.

Major John K. Allen, 35, ISC '34, was commissioned 29, Oct. 1937; promoted to the rank

MAJOR JOHN K. ALLEN

of captain 15, March 1939, and to the temporary rank of major 28, Dec. 1942. Prior to receiving his commission in the Regular Army he was on duty with the Civilian Conservation Corps. Major Allen served at Fort Bragg, N. C., Fort Myer, Va., and in Bermuda. Upon his return from Bermuda he was assigned to Fort Riley, Kans. In 1944, Major Allen was assigned to the China-Burma-India Theater. Shortly after his arrival overseas he was hospitalized and returned to the United States because of physical disability, for which he was retired 11, Jan. 1945. Present address: Harlan, Ia.

Recent Changes in the "G.I. Bill of Rights"

The "G.I. Bill" has been liberalized by Act of the Congress to allow veterans, (1) four instead of two years in which to begin their schooling, (2) nine instead of seven years during which to complete their schooling, (3) subsistence and tuition for four years regardless of age, (4) reasonable tuition up to $500 for refresher and short courses, (5) tuition up to $2000 for less than four years' schooling, (6) tuition (but not subsistence) during terminal leave and (7) $65 per month for veterans without dependents and $90 per month for veterans with dependents.

Agricultural Prosperity and the Veterinarian

The income of veterinarians engaged in general practice is so intimately related to the general prosperity of agriculture that the national farm program is of weighty concern to the whole veterinary profession.

None questions that the personnel of the veterinary profession is inadequate in number to supply all the veterinary service the livestock industry could profitably use or, when the market prices of food animals are high, all the veterinary service livestock owners are desirous of having. Per contra experience has shown that when farm income is greatly depressed, livestock owners are willing to pay for considerably less service than the profession is anxious to render. Consequence: the depression in veterinary incomes almost paralleled that of agriculture.

Sketchily the farm problem is indicated by the following production record: Food crop production in 1945 was 25% greater and feed grains 30% greater than the average for the last five pre-war years. Livestock (including dairy and poultry products) production was 40% greater than prewar. Notwithstanding rationing, the average civilian ate 8% more food during the war years than he did before the war. The armed forces, Lend-Lease and export accounted for the remainder of the excess.

The indications are that the production quota for 1946 will be the same as for last year. The Administration has various proposals under consideration for utilization of this increased production, with Lend-Lease discontinued and the armed forces reduced more than 75%. Favored plans seem to be an increase of 10% (above prewar) in per capita consumption of food and an increase of 8% in food export. Only moderate reduction in the prices of farm products is contemplated.

Various means are proposed to promote and support this increased domestic consumption and increased export of food. In one of these veterinarians can assist wholeheartedly and materially—education of consumers as to which foods are best for a high plane of nutrition. Other plans, now only in the discussion stage, contemplate extension of school lunches, food stamps for low income groups, export subsidies, foreign relief and food for war ravaged areas.

The Congress of course disposes in these matters. Its action is unpredictable at this time, except that foreign relief and food for war ravaged areas are assured of a sympathetic consideration.

Reminiscences IX

By NELSON S. MAYO
Mt. Dora, Florida

IN 1909 we were back in the United States and I was looking for a job. There was an opening in the Philippine Islands as Chief Veterinarian for the government. In going over the situation with the Chief of the Bureau of Insular affairs there appeared to be a rather complicated situation. I think the former Veterinarian had resigned. Surra had been introduced into the Philippines by cattle imported from some Asiatic region and had caused serious losses among the native carabao. There appeared to be some confusion in the local authority and it seemed to me that the Chief Veterinarian did not have the power necessary in such a situation. Another serious drawback was the fact that we wanted our children to grow up and be educated in the United States. They had had the experience of living in a Spanish speaking tropical country and, since I did not want to be separated from my family, the Philippine post was not favored.

The Virginia Polytechnical Institute offered me the chair of Animal Husbandry and Veterinary Science and the offer was accepted. The Institute is located at Blacksburg in the edge of the Allegheny Mountains at an altitude of over 2000 feet—the winters mild and relatively short and the summers pleasant.

Soon after coming to Blacksburg the Philippine offer was repeated. As I remember it, Dr. Archibald R. Ward was the first American civilian official veterinarian in the Philippines. He and I were both doing graduate work at Cornell in 1897 and worked at adjoining tables. He was succeeded by Dr. Staunton Youngberg, a graduate of O.S.U. and son of a prominent veterinary practitioner in Minnesota. Dr. George Newsom, a former state veterinarian, was Secretary of Agriculture in the Philippines at that time. Doctor Youngberg visited the United States a few months after I arrived at Blacksburg and spent several days there urging me to reconsider and accept the Philippine position, but I declined. When we parted at the railroad station he said, "I don't blame you for not accepting." After Doctor Youngberg retired from office some 10 years ago he returned to his former home in Ohio. About 1939 he returned to the Islands to look after his interests there. He was captured by the Japs when Manila fell and imprisoned until the recapture of the city by the American Army a few months ago. He is now a patient at Stanford-Lane Hospital, San Francisco.

In the mountain valley of southwest Virginia bluegrass grows to perfection so that beef cattle fattened solely on bluegrass are exported to Europe. Hampton Institute located at Hampton, Virginia, is an excellent educational college established for the training of young colored men and women.

At Hampton Institute the acquaintance of Major Moton, a member of the faculty and the most outstanding colored man I ever knew, was made. His sound judgment, tact and executive ability were such that he succeeded Booker T. Washington as President of Tuskegee Institute. Later when the United States sent a commission to Haiti to report upon the withdrawal of the U. S. Marines he had my endorsement to the State Department to be a member of this commission and was appointed.

Major Moton once related an amusing incident. His wife, a very light mulatto, hired a colored woman to do housework. The latter did not recognize Mrs. Moton as colored until she reached the house, then stalked away remarking, "I only works for white folks."

At this time there was a bill before Congress which would authorize the commissioning of army veterinarians. This bill was opposed by many old-time army officers. Doctor Ferneyhough, then State Veterinarian of Virginia, and I made two trips to Washington to do what we could to secure the passage of the bill. Doctor Ferneyhough was an able and aggressive man—I think a cousin of U. S. Senator Swanson of Virginia—and was very helpful in the passage of this bill.

Two of the students at the Virginia Polytechnical Institute afterwards studied veterinary medicine—Dr. H. C. Givens, now State Veterinarian of Virginia and Dr. Ashe Lockhart.

In 1913 while attending the annual meeting of the A.V.M.A. in New York (I have only missed eight or ten meetings in upwards of 50 years as a member (in some instances it was a matter of expense and in others circumstances prevented). Dr. Joseph Hughes came and, whispering, asked if I would take the secretaryship if elected. This was a surprise to me but, after consideration, I assented and was elected secretary—later discovering there was considerable politics back of this election of which I had been totally ignorant.

In talking with Dr. D. M. Campbell at this meeting, he told me he was going to resign as manager of the veterinary department of the Abbott Alkaloidal Company and devote all of his time to VETERINARY MEDICINE and intended to suggest that I be appointed his suc-

cessor. Soon after this, an offer was received from the company which was accepted.

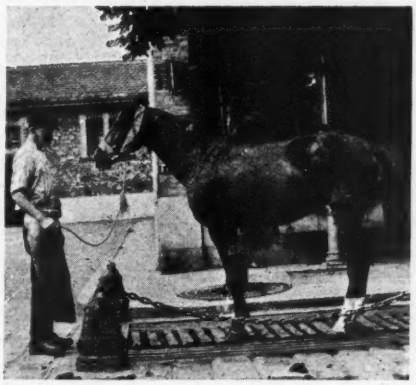
Twenty years had been spent facing college students with an additional five years of research and livestock sanitary work, hence this new undertaking involved a radical change of occupation. The life of a college professor is usually pleasant. A fine community of college people and an enjoyable contact with students; but two drawbacks were the relatively low pay and a lack of security of position in a state college due to partisan politics—at least then. I didn't have much ahead, financially, and some of our children were nearly ready for college, so a change was made from college work to a business career.

When I became Secretary of the A.V.M.A. in 1913 the Association was not in sound financial condition. It was necessary to collect the three dollars a year dues in advance to obtain funds to publish the annual report of the preceding year. Owing to an outbreak of foot-and-mouth disease, no meeting of the A.V.M.A. was held in 1914. That year I published the first official directory of the association and recommended to the Executive Board that the A.V.M.A. establish an official journal which was done in 1915 by the purchase of the *American Veterinary Review* then published by Dr. R. W. Ellis of New York. The Executive Board offered me the position of editor, which was declined. A fair sum in the treasury was turned over to Dr. C. M. Haring, my successor.

In 1914 I joined a party of veterinarians on an European trip to attend the meeting of the 10th International Veterinary Congress to be held in London. It was on this trip that I became well acquainted with Dr. John Blattenberg of Lima, Ohio, as we occupied the same stateroom on the boat. Doctor Blattenberg was a prominent veterinary practitioner and was an outstanding surgeon. He devised a burr that was, and still is, extensively used in the operation for roaring. Soon after the boat left New York the doctor invited a number of his friends to our room to open a package that some young ladies in his home town had sent, not to be opened until the boat sailed. Blattenberg was a small, baldheaded bachelor. The package contained a woman's nightgown and a fine wig of curley hair with a note that said, "In case of accident at sea, put these on. It is always women first and we want you to be saved." The doctor was the life of the party and was continually pulling off stunts* of various kinds. In Lima he built a large garage and decided to have an opening celebration. He hired two negroes to put on a fight to a finish and invited his men friends under a pledge of secrecy. Then he invited their wives and sweethearts under the same conditions and the latter were hidden behind a curtain. When the fight was in full swing he had arranged with the police to raid the place. The curtain was pulled and the ladies saw the men going through windows and hiding about.

While in Paris Dr. E. B. Ackerman of New York and I went to pay our respects to Dr. Alexander Liautard, who had retired and was living with his daughter on a beautiful country estate some distance from Paris. We spent a most enjoyable day with this famous dean of veterinary education in America.

A number of French veterinarians entertained our party with a banquet at a famous old restaurant, La Perouse, named for a French Naval Officer who commanded a war vessel at the blockade of Yorktown, Va., during the Revolutionary War. It was a wonderful French meal. An abundance of meat and a little more than that of fine wines to drink. On the way back to our hotel Doctor Blattenberg asked me if the meal started with potatoes or wine. I was a *little* hazy myself. The "speechifying" was not so successful. None of our party spoke French and none of our French hosts spoke English. One French veterinarian spoke Spanish and he translated French to Spanish and I tried to turn it into English, but it was badly mixed. However the good will was there and we planned to give our French hosts the best meal London could supply if we had to pawn our watches. Unfortunately the outbreak of World War I prevented this.



Weighing a horse for slaughter at Municipal Abattoir in Paris

(To be continued)

*In a short write up of the trip which Doctor Blattenburg sent to VETERINARY MEDICINE he gravely stated that Doctor Mayo was elected Chaplain of the party on account of "his exemplary behavior and he has more than come up to our expectations in this capacity."

Clinical Reports

Double Cervix in a Cow

In a purebred herd of Holstein cattle, which has been under continual supervision, a four-year-old cow with a double cervix was discovered and has been examined on several different occasions.

This cow was bred naturally for the first time at 18 months of age and conceived in the right horn. At the end of 281 days she delivered, unassisted, a normal, healthy heifer calf. Two months after this parturition she was bred artificially, at which time the clinician discovered two distinct cervical orifices, while examining the vagina with a speculum.

On rectal examination the cervix appeared to be completely divided into two separate and complete tubular structures closely connected with connective tissue. There seemed to be no common body of the uterus, but each part of the cervix opened into a separate uterine horn. These horns were attached just anterior to the cervices.

Although a mature follicle was found on the right ovary, 2cc of semen was deposited into each cervix. After a full term pregnancy in the right horn, she gave birth unassisted to an 85-pound bull calf.

Sixty days later she was listed for breeding, and after the second insemination conceived in the left uterine horn.

Three and one-half months after the second insemination, she was found in the act of abortion. A vaginal examination discovered the fetus was partially protruding through the left cervix.

After the abortion, a careful examination was made and a fenestrum affording communication between the two horns was located just anterior to the cervices. The opening was about 35mm in diameter.

The chorion and allantois from the gravid horn had protruded through this opening and was attached by only four very poorly developed cotyledons. In the gravid horn the membranes were attached in six large areas which appeared to be areas where cotyledons had fused together.

Due to the fact that the cow was negative to the brucellosis and trichomoniasis tests, and apparently suffered from no infection in the uterus, the probable cause of the abortion was that, due to the malformation of the cotyledons inadequate nutrition to maintain the fetus was supplied.

The owner was advised to milk the cow as long as her production was profitable; then to get her in good condition and ship her for slaughter.

JEAN C. SMITH

Mapleton, Kans.

Comment.—The case report entitled *double cervix in a cow,* by Dr. Jean C. Smith, is highly interesting in many respects. Like all case reports some interesting facts are omitted. In some places there is not a wholly clear distinction between facts and conclusions. Facts are not debatable, while conclusions are freely open to discussion.

Teratological defects like those described, are regarded by some as freaks of nature in which all natural laws are ignored; others regard them as the consequence of errors in breeding or handling. In the former there is nothing to be done about it; in the latter when careful observation reveals the etiology the veterinary practitioner is in position to advise his client in a manner to eliminate the recurrence of the defects. The cow described is a purebred Holstein and as such has an available pedigree. So far as I know most teratological defects of the reproductive system of dairy cattle are associated with inbreeding, and consequently the pedigree of the animal would be of possible interest in arriving at a defensible conclusion as to the cause of the defect. The date of the birth of the defective cow is not recorded, and the breeding and abortion dates are only approximately given. The first calf, a heifer, may have reached breeding age, may have been sold as a valuable breeding animal, may have genital organs equally defective as those of her dam, and may be far more of a liability than asset. Likewise the second calf, if the breeder has not been advised, or is not honorable, may have been sold as a herd sire. The sex of the aborted fetus, as is the rule, is not stated. Ordinarily, aborted fetuses and the young of immature females show an excessive ratio of males.

While the title is factual in form and indicates that the patient had a double cervix, subsequent statements may permit the reader to regard the title as a conclusion and some might think that the facts submitted fail to warrant it. In Fig. 11, page 32 of my "Diseases of the Genital Organs," a casual glance might lead the reader to think that the cervix was double. This type of defect is not very rare in dairy cows but it is not known that the structure is a part of the cervix, and it is known that a double cervix is not present. The embryology of this portion of the repro-

ductive system of the cow is none too clear to the ordinary reader. Generally speaking, it is taught that the two Muellerian ducts originate separately and later come into contact at their caudal ends and fuse for varying distances according to species. In all species the fusion is complete in the vaginal area, their median walls disappear and a single tube remains. Perhaps the most defensible conclusion available is that in the case illustrated the removal of the adherent median walls of the vagina became arrested at its cephalic end, leaving a perpendicular fleshy column located against the os uteri externum.

There occurs in the report the somewhat vague statement that the two cervices communicated by a fenestrum just anterior to the cervices. This is the natural point at which the two parts of the didelphic bovine uterus physiologically communicate to jointly open into the cervix. Elsewhere it is stated that "there seems to be no common body of the uterus." That does not seem strange. I have not seen a uterine body in a cow whether living or dead. I find descriptions of *Corpus uteri* in veterinary anatomy, but have failed to see it in any of the some thousands of uteri studied on the killing floor, and a considerable number studied clinically in obstetrics and sterility. If anybody can identify a *uterine body* in figure 3 on page 15 of my veterinary obstetrics (1943) and clearly state where body ceases and the cornu begins, he will greatly surpass my ability.

The conclusion of Doctor Smith that because the cow tested negative to brucellosis and trichomaniasis, she therefore had no intrauterine infection is in accord with the views of many, but like all conclusions is open to discussion. When Professor Bang made his great discovery approximately fifty years ago it was for some unfathomable reason almost universally believed that all abortions in cattle were due to one, and one only invader. Later it became necessary to admit that an unknown number of bacteria occur in cases of abortion, and that at least one protozoan, the trichomonad, was frequently present. When Professor Walley published his notable "The four bovine scourges" the question of abortion was by-passed and all emphasis concentrated upon the peril to the lives of the pregnant, and nonpregnant cows. Of course many of the pregnant cows aborted. If the plague seriously threatened the life of the pregnant animal it unavoidably imperilled similarly the fetus in the uterus; if the cow died, the fetus also succumbed, unless expelled prior to the death of the cow. Taussig in his standard treatise upon abortion states that one-half the pregnant women who contract typhoid fever, smallpox, malaria and other serious contagious diseases, abort. He mentions, especially, the destructive abortion rate in the disastrous influenza epidemic of 1918. If a pregnant cow suffers from foot-rot, one of her interphalangeal articulations opens and her life is seriously threatened, she is quite liable to abort before she dies. That has nothing to do with the frequent presence of the Brucella organism in cattle abortion.

There appear to have been ample reasons for the cow having aborted: (1) when immature heifers are bred, as in this case, they largely abort. In most civilized countries statutory laws forbid the marriage of immature girls; those which evade the law largely abort, give birth to premature young, and to an excessively high ratio of boys; (2) when a cow is bred at 60 days or less after calving she is far more liable to abort than when a longer interval is granted, she is more liable to have twin pregnancy, and according to available knowledge, the ratio of bull calves will be excessively high. Some cows will withstand breeding as immature heifers and rebreeding at 30 to 60 days postpartum, but as a rule the abortion rate is excessively high, the calves born will generally have a brief duration of fetal life, the death rate of the newborn will be high and as adults they will largely be a liability instead of an asset in the breeding herd, the cows will largely suffer from retained fetal membranes, etc.; (3) any mammal having definite teratological defects, if a female, is definitely prone to abort, if a male and used as a sire he will frequently prove a disastrous liability.

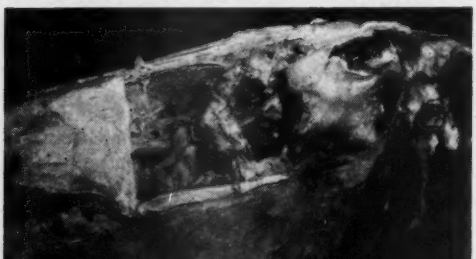
After studying the afterbirth of the aborted fetus Doctor Smith concludes that the death and expulsion of the fetus was due to a want of adequate nutrition, owing to inadequate placental connection, and hastily judged his conclusion seems quite warranted. A more careful study gives ground for questioning its validity. Doctor Smith relates the facts that at the close of her first pregnancy she gave birth to a normal, healthy calf and ended her second gestation with an 85-pound, bull calf. However imperfect her placental supply at the time of the abortion the two prior calves would indicate that during their fetal life there was an adequate nutrient supply and that the defective placenta of the aborted fetus was *pathological* not *teratological*. Doctor Smith fails to state the occurrence, or absence of retained afterbirth in the first two pregnancies. Retained afterbirth is not always seen although it may have been highly destructive, as was apparently the case in the cows, the

uteri of which are shown in figures 77-79, p. 312-314 of "Veterinary Obstetrics" (1943). In these animals it is quite justifiable, if not mandatory to conclude that the disasters were due to pathological forces acting at the close of the prior pregnancy: they *prevented* abortion instead of causing it.

With further study, and especially if the reproductive organs of the cow are obtained after slaughter, the case report of Doctor Smith should be highly interesting and instructive in various ways.—*W. L. Williams.*

Carcinoma of the Maxillary Sinus in a Horse

A one thousand pound, seven-year-old, pinto gelding was presented for treatment. His history showed that the left eyeball had been injured some 10 months previously. There was no visible evidence that neoplastic tissue was involved, nor did the history indicate that there were new growths anywhere in the body.



The part of the tumor removed on post-mortem examination weighed 420 grams

A copious, unilateral, purulent nasal discharge had existed for some time.

The eye was removed surgically in the conventional manner. Upon the completion of the extirpation it was discovered that the bony wall medial to the orbit had eroded. Further investigation showed a portion of the frontal bone just medial to the eye to be eroded also. Microscopic examination of a portion of the neoplastic tissue resulted in a diagnosis of carcinoma. Naturally the prognosis was most unfavorable, but the surgical wound was treated, and the animal lived, but the neoplasm continued to grow. Eighteen days later euthanasia was administered.

A careful post-mortem examination was performed and the tumor, when removed, was somewhat pedunculated with the base attached to the medial wall of the posterior compartment of the maxillary sinus. As shown in the accompanying illustration, the carcinoma was situated in front of and above the orbit. A small amount of the neoplastic tissue was found in the frontal sinus. Both the frontal and maxillary sinuses were filled with a yellow, viscid pus. That part of the tumor which was removed on post-mortem examination weighed 420 grams. No other neoplastic lesions were found in the body.

J. R. Olson

Ventura, Calif.

Malignant Head Catarrh in Cattle

July 21 I was called to the H. E. ranch southwest of Conrad, Montana. In the barn were two adult cows and one eight-month-old heifer, each of them presenting the same symptoms.

There was definite inspiratory dyspnea and an expiratory dyspnea only slightly less. The eyes were dull and the conjunctival muddy. There was acute swelling, from the symphasis rami to behind the pharynx, of about the size of a football. Discomfort was evident on palpation of the pharyngeal region. There was salivary discharge from the mouth and a pinkish mucopurulent discharge from the nostrils.

All three had elevated temperatures of 2 to 3° F. One cow was down, and near death; one was just becoming acutely affected and the heifer was in serious condition.

The cow most seriously affected had first shown symptoms 36 hours previously, that is, the afternoon of the second day previous to my being called. The heifer was her calf and evidenced symptoms the following morning, or 24 hours previous to my call. The second cow had been exhibiting symptoms for 12 hours.

No other cattle were ailing or showed any symptoms of illness whatsoever. These animals were segregated and the same treatment was given to all three; two cubic centimeters of sterile milk per 100 pounds of body weight was injected intramuscularly in several different sites. Trypacrin solution was administered intravenously, 60cc for one cow, 100cc for the one in the worst condition, and 20cc for the calf. The cow that was down was given 200cc of calcium dextrose solution.

Slings were made and ice was packed around the throats and replenished for 12 hours. All three recovered without complications, in 24 to 36 hours.

A. W. Elting

Shelby, Montana

Traumatic Splenitis in a Dairy Cow

A Guernsey cow with a history only of complete loss of appetite and rapid loss of weight was presented for examination, which revealed a normal temperature, slight increase in the pulse and respiratory rates, anorexia, thin in flesh and extreme weakness.

On rectal examination the right kidney was found to be slightly enlarged. At various times this cow ate sparingly of green alfalfa but at no time would she eat grain or dry feed. No pain was shown on palpation or movement at any time as would be expected of an animal with a traumatic condition in the abdominal cavity.

Urinalysis revealed the following:
Reaction—Alkaline
Color—Amber
Odor—Normal
Specific gravity—1.040
Test for ketones—Negative
Test for sugar—Negative
Test for albumin—Positive
Test for bile salts—Negative
Microscopic Examination: Pus cells, large numbers of streptococci, a few diplococci and a few Gram positive rods.

Culturing of the urine yielded a pure culture of Streptococcus.

The results of the urinalysis would indicate a streptococcic infection of some part of the urinary system with the probability of it being in the kidneys as indicated by the presence of albumin.

A blood examination revealed the following:
Erythrocytes—2,600,000
Leucocytes—9,200
Hemoglobin—Less than 7.5 grams per 100cc.
Differential leucocyte count:
Eosinophiles—3%
Basophiles—0%
Myelocytes—0%
Juvenile neutrophiles—1%
Stabs—6%
Segmenters (mature neutrophiles)—53%
Lymphocytes—35%
Large—11%
Atypical—3%
Small—21%
Monocytes—2%

These results show a definite decrease in the normal number of erythrocytes and amount of hemoglobin and in increase in the number of leucocytes. The increase in leucocytes is entirely in the neutrophile series which are almost exactly three times as numerous as in normal bovine blood. There is also a sharp drop in the normal number of lymphocytes. The great increase of mature neutophilic leucocytes would indicate a septicemic condition of long standing.

A tentative diagnosis of streptococcic nephritis was made and an unfavorable prognosis given.

Treatment consisted of 400 grains of sulfanilamide given orally three time a day for eight days and then 250 grains twice a day. Supportive treatment of 500cc of 25% dextrose solution every other day and one ounce of Udall's stock tonic daily was given.

Regardless of treatment the animal grew steadily weaker and died two weeks after treatment was begun.

Post-mortem examination revealed the presence of eleven nails, one screw and a washer in the reticulum with signs of puncture and extensive adhesions of the reticulum to the spleen. The spleen was enlarged and contained numerous fistulous tracts. One of these tracts ran from one end of the spleen to the other and was over one-half inch in diameter. No normal functional spleen tissue was left. Other pathological conditions consisted of multiple abcesses of the liver and slightly enlarged kidneys.

A post-mortem diagnosis of traumatic splenitis subsequent to traumatic gastritis was made.

This case is a good example of how misleading evidence may be in some cases. One would naturally suspect the streptococci in the urinary system of being the predominating factor in this case, especially in the absence of any evidence of any other pathological factor. However, the post-mortem examination failed to reveal any serious involvement of the urinary system but did reveal unusupected disease in other organs.

WAYNE APPLETON

Ashland, Ill.

Unclassified Testicular Tumor

A two-year old cryptorchid horse was presented for castration. External palpation revealed that it was the left testicle that had been interrupted in its descent. No structure could be definitely identified by rectal examination as being the testicle sought. However, on the brim of the pelvis at the location of the neck of the bladder, a hard irregular object of about the size of a hen egg could be palpated. This object felt very much like a urinary calculus.

The horse was given one ounce of chloral hydrate via stomach tube and confined in dorsal recumbancy. After the operative area was prepared, the usual incisions were made. The hand was inserted into the inguinal canal and through the internal inguinal ring. A search for the sermatic cord brought out the object described. Normally this would have been the testicle, but it was a very firm, rough tumor with two small cysts on its exterior. The right testicle was removed at this time.

This tumor was sectioned and examination

revealed that it was almost entirely composed of cartilage, held together by strands of fibrous connective tissue. No ossified cartilage was present.

According to available literature, this tumor

The testicular tumor split open

resembles a teratoma more closely than any other. It is almost certain that it was of embryonic origin. Since it contained no testicular tissue apparently its removal was unnecessary; the animal would have been effectually gelded by removal of the testicle that had descended to the scrotum.

FRANCIS AHRENDES

Miltonvale, Kans.

Posterior Paralysis in an Aged Bitch

An aged, female English bull dog was presented to the Flynn Dog and Cat Hospital in Kansas City for treatment. The owner stated that the dog was 15 years old and had been quite active up until two weeks previously. At that time, the hind legs became weak and later paralyzed. The dog kept on eating and otherwise acted normal.

The temperature was 102.5° F., the mucous membranes congested. The mammary glands were much enlarged and contained a large amount of milky substance. The patient walked on her fore legs and dragged her hind quarters.

The owner was advised that an operation might help the condition but the age of the dog made her recovery somewhat unlikely. The owner replied that the dog was a wonderful pet of the family and he wished anything done that might restore her to a normal condition.

Dr. Deets Pickett operated. Nembutal, 3cc, was given intravenously at the onset of the operation and 1cc later. The operative area was cleaned with soap and water, shaved, and painted with tincture of iodine. An incision about 3½ inches long was made through the linea alba. The ovaries, tubes, uterus and horns were removed. The body of the uterus was about two inches and the horns about 1½ inches in diameter.

The mucous membrane lining the body of the uterus and the horns was quite tough and fibrinous and in areas there were large clots of blood.

The incision was sutured with regular cat gut. Following the operation, 150cc of dextrose and saline solution was administered intravenously.

The patient made an uneventful recovery and two weeks after the operation, was sent home. At this time, the mammary glands were normal in size and the paralysis was completely relieved.

JACK E. FOX

Kansas City, Kans.

Latent Infection Following Castration

A valuable chestnut colt was castrated in the spring when two years of age. He made an uneventual recovery following the operation. There was marked swelling for a while after the operation, otherwise nothing abnormal seemed to develop. Instead of removal of the testicles by the emasculators, the spermatic cords were ligated with stout linen thread and then severed with the scalpel.

One year later in early spring it was noted that while exercising, the colt became suddenly stiff in the right hind quarter. Upon investigation, an extensive swelling and induration of the right scrotal area extended along the sheath and inner side of the thigh. This condition continued for a few days. A veterinarian was called. No sign of any wound or abrasion of the skin over the area could be found. And no history of any injury could be obtained from the owner. The colt had been kept in a box-stall with no contact with other horses in the stable. It had been a great pet and no one but the owner had taken care of it.

The veterinarian who had had long experience in a large equine practice, was puzzled as to the cause of this condition. Hot packs were applied several times a day, and daily light exercise was advised. About a week after the condition was discovered, a yellow colored discharge was noticed draining from a small opening in the center of the castration wound scar. The discharge at first was thick and profuse, but gradually decreased in amount and the swelling began to subside. The lameness and stiffness disappeared and the colt soon returned to a normal condition. No further trouble of this kind developed and the animal continued in good health for a number of years.

P. A. KIMBALL, M.D.

Union, N. H.

Infection in the Throat Region of Cattle

Occasionally I see a condition I have called simply edema of the throat. These animals have a soft, doughy swelling extending from the submaxillary space to the brisket. Upon inserting an exploratory needle only a reddish fluid is seen. Never have I seen them localized and break. I usually treat such cases with sodium iodine or sulfanilamide and results have been good with either line of treatment.

I have usually associated this condition with traumatism of some kind, but have never felt sure as to the cause of the trouble. The other day I was called to a dairy to see a cow, which the owner described as having a swollen neck.

The cow was nearly dead when I arrived and died while I was there. This animal had a swelling of the throat region for about a week or ten days before I was called. The swelling extended down the neck and brisket and under the belly to the udder. Under the belly there was a great collection of fluid of a slightly pinkish color.

The necropsy revealed that the discoloration permeated the entire edematous area and extended under the shoulder nearly to the top of the scapula. The internal organs were normal except for a small liver abscess. I found no signs of the trauma I had expected to find.

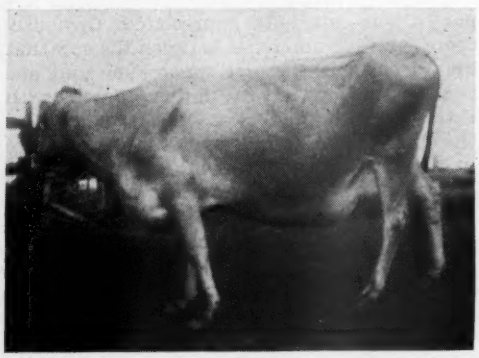
Just how and where this infection gained entrance to the throat region and progressed so rapidly is a mystery to me. My guess is it was contracted through the mouth by way of a spear-grass or cheat awn.

H. W. JACOBSON

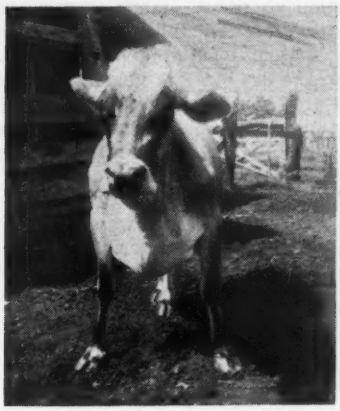
Havre, Montana

Traumatic Pericarditis

The cow shown in the illustration presented quite typical symptoms of an advanced case of traumatic pericarditis but the necropsy revealed some uncommon lesions that explained the extreme abduction of the fore limbs. It will be noted that the edema extended all the way from anterior to the dewlap to the udder



Note edema beneath the mandible, sternum and abdomen



indicating serious circulatory impairment. The wide spread front feet relieved so far as possible all pressure on the thoracic wall which must have been painful.

The necropsy showed involvement of all structures in the thoracic cavity, except the right lung, in extensive purulent and fibrinopurulent lesions. The cause appeared to be a small piece of wire that had worked forward from the reticulum. The astonishing revelation of the autopsy was not the lesions, but that the animal could live for weeks with the thorax half full of pus.

W. M. BURSON

Athens, Ga.

Supernumerary Toe in a Cocker Spaniel

Five black cocker spaniel pups, one month of age, were presented for caudectomy. All five appeared to be normal, healthy puppies, but upon closer examination, one puppy was found to have a supernumerary toe on the right front foot. The extra toe was located on the anterior end of the center pad. The toe was about one-half inch in diameter, three fourths inch long with a white tip where the nail should be. The white tip was rather cartilagenous, but the remainder of the toe was devoid of bony framework. However, it was covered with hair and otherwise normal. The location of the extra toe made it a handicap to the puppy so it was removed surgically, the skin being brought together by two interrupted sutures. Recovery was uneventful.

FLOYD STEELE

Hutchinson, Kans.

Abstracts

Calcium Carbonate as an Antacid with Penicillin

In extensive tests[111] made in the oral administration of penicillin, with various antacids, the penicillin-antacid combinations were mixed in the dry state in gelatin capsules and administered with water to fasting persons. Two grams of the antacid was combined with 100,000 units of penicillin, control groups were given the calcium penicillin without the antacids.

The average serum levels were approximately twice as high at all test periods as when calcium penicillin alone was given, while with the pencillin-sodium citrate combination they were also generally higher than with penicillin alone. The average serum levels of penicillin with dry sodium phosphate buffer, aluminum hydroxide, magnesium trisilicate or magnesium hydroxide were all inferior to those of penicillin alone.

The value of calcium carbonate is probably because it is a non-systemic acid. Dosage schedules for oral administration of pencillin with calcium carbonate are being investigated.

* * * *

Value of Vaccination in Control of Brucellosis

An experiment[107] by Birch, Gilman and Stone carried on from 1936 to 1944 in a "relatively large herd" of dairy cattle, constitutes one of the most informative yet published as to the value and the place of calf vaccination in the control of bovine brucellosis. The plan involved:

1. Vaccination of calves between four and eight months of age with fresh live cultures of Brucella organisms, strain 19.
2. Adequate numbers of controls.
3. Carefully checked and frequent natural exposure during the period of observation (eight years).
4. Cattle held under observation for a term of years.
5. Systematic examination of the milk and uterine contents for Brucella organisms at the termination of each pregnancy.
6. Systematic blood agglutination tests of all animals monthly.

The herd was fed and cared for as in the average, well-managed dairy herd. Both the vaccinated and the control animals mingled with the herd and in all things except for vaccination were handled alike.

It was thought that subjecting the animals to frequent exposure to infection would conduce to longer lasting resistance to the disease in the animals, which were vaccinated as calves. To accomplish this, in addition to the abortions that occurred in the herd, aborting animals from other herds were added at frequent intervals. However, this frequent exposure to infection apparently did not prolong the resistance of the vaccinated animals, since it decreased at approximately the same rate that has been reported in herds where vaccinated animals were exposed to little and infrequent infection. Eventually approximately one-half of the vaccinated animals acquired the infection.

Briefly, conclusions of the authors are:

1. There is a decided advantage of the vaccinates over the controls, expressed in a higher percentage of live calves, a lower abortion rate and lower incidence of spread of the infection at calving time.

2. The data show that vaccination prevented some brucellosis, it delayed its development and mitigated its effects (94.27% apparently normal parturitions in the vaccinates against 76.92% in the controls). It failed to prevent brucellosis in a surprisingly high percentage of vaccinates.

3. Regarding the immediate reduction of losses the results of this experiment fully support the claim that vaccination provides valuable protection. The vaccination prevents delays or mitigates a high percentage of brucellosis. It is far more effective in delaying the development and in softening the effects of brucellosis than it is in preventing it.

"The usefulness of vaccination in softening the effects of the disease by reducing the abortion rate is well recognized, but its usefulness in delaying the time of infection apparently is not fully appreciated. Obviously there is a wide difference between the cow that breaks down in her first pregnancy and one that breaks down say, in her fourth, with three years of production to her credit. But the chief value of the delay lies in its influence in aiding the establishment of clean herds. Delay in the susceptibility of young stock is important.

"Further it is almost certain there is a subtle advantage attached to calf vaccination that cannot be brought out in any formal experiment. This extends beyond the mere fact that the animals in a vaccinated herd have considerable resistance under ordinary exposure. The advantage lies in preventing

[111] Seeger, Victor P., and Collen, Morris F. Calcium carbonate as antacid for oral penicillin. *Sci.*, 102-2644, pp. 225-227, Aug., 1945.

[107] Birch, R. R., Gilman, H. L., and Stone, W. S. The immunity created by vaccination of calves with Brucella abortus, strain 19, *Cor. Vet.*, 35:2, pp. 110-122. 1945.

even the ordinary exposure. Probably when unvaccinated clean herds become infected—if we except those instances in which there is introduction of outside cattle, or gross carelessness—the break is initiated by a relatively small number of brucella organisms in a highly susceptible animal. This animal, particularly if she acquires uterine infection, at calving time, steps up enormously the dosage to which the less susceptible animals are exposed and they readily become infected. It is probable vaccination serves a useful purpose in preventing these initial infections."

The authors do not comment upon it, since the experiment was designed to investigate calf vaccination only, but their results indicate the necessity for biennial vaccination as necessary to derive the full benefit from it.

Thus at the first pregnancy abortions were 2.22% in the vaccinated; 33.33% in the controls. At the second pregnancy, 2.7% and 20.8%; at the third, 3.23% in the vaccinates but there were no controls. At the fourth pregnancy 15.33% in vaccinates and 10% in controls. Thereafter there were no abortions in either group. Total abortions for six pregnancies were: vaccinates 4.46%, controls 18.68%.

Normal parturitions for the first pregnancies were 95.56% in the vaccinates and 54.56% in the controls; at the second pregnancy 94.59% and 79.16%, respectively, at the third, 96.77% compared to 100% in controls.

Spreaders and reactors followed the same trend but the differences were not so great.

Either there was no effect from calf vaccination beyond the second pregnancy or by the third pregnancy the susceptible animals among controls had been weeded out, or some had acquired resistance to the infection by that time. Perhaps all three factors obtained. In any case the advantage of calf vaccination, and it was very large, was practically all attained in the first and second pregnancies.

When this experiment was undertaken vaccination of adult animals was not nearly so common as it has since become, nor had the research of Haring and Traum demonstrated the superiority of vaccination after sexual maturity over calf vaccination. Their experiment indicated that vaccination of calves four months of age or younger is of little or no value. This experiment appears to indicate that, where sexually immature animals are vaccinated, such animals will require a second vaccination after two years if they are to be subjected to severe exposure to Brucella infection. This is important information.

The superiority of performance of vaccinates over that of the controls was greatest in the first pregnancy, slightly less during the second and much less during the third pregnancy. At the fourth and subsequent pregnancies, there was no significant difference in performance between the vaccinated and the unvaccinated animals.

The conclusions from this research represent a complete reversal of the senior author's former attitude toward vaccination as a means of control of brucellosis. At the Atlanta meeting of the A.V.M.A. in 1932 the special committee on brucellosis presented majority and minority reports.[1] The essential difference being that the majority report opposed vaccination as a means of control and the minority report stated that recent research had shown vaccination of calves with *Brucella abortus* of low virulence to be worthy of trial.

Majority report: "The only successful method yet demonstrated of eliminating brucellosis from infected herds is through the use of the agglutination test and elimination of reactors. . . . These essentials still remain fundamental to the successful elimination of brucellosis from any herd."

Minority report (signed by W. E. Cotton): "It has become evident that there is no single method of combatting brucellosis that is applicable to all herds. Where it is practical, the radical elimination of all animals of breeding age reacting to the agglutination test is best, but there are many herds in which less drastic methods must be used. . . . In badly infected herds, or those in which protection from exposure to infection is doubtful or impractical, the judicious use of vaccine prepared from Brucella abortus of low virulence and of vaccination during calfhood has been shown by recent researches to be worthy of trial."

A motion to adopt the minority report received only three affirmative votes. Doctor Birch led the opposition to it; stating that to adopt it would be "simply going back eight or ten years and probably further."

It should not be forgotten, when the history of brucellosis control is written, that in 1932 W. E. Cotton pointed out that experience had already shown there was no single method of combatting the disease that is applicable in all herds. A statement identical to that was made by the Chief of the B.A.I. 12 years later. Also that in 1932, on the basis of the findings of research already published, he suggested the four plans for control officially adopted by most of the states in 1944, after 50 million dollars had been spent in a futile attempt to make one plan work in all herds.

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[1] *J. A. V. M. A.*, 34:4, pp. 493-499, 1932.

Tympanites of the Rumen in Cattle

The author[96] has experienced much trouble from bloat in cattle on lush green pasture in the fall. Also he has seen such feed pall upon the animals which ate less of it than they should and made poor gains on pastures that were, to every appearance, excellent. Both conditions were remedied by the well known practice of feeding the animals hay or straw each morning before they were turned on the pasture.

Because of the inconvenience of a separate feeding of dry forage it was made available to the cattle in the pasture. Somewhat to the author's surprise the animals left the lush grass from time to time and consumed the hay and straw, much preferring the latter. This practice not only prevented bloat, but sustained the appetite for green forage and resulted in increased production and improved gains.

Treatment of Choke in Cattle

In many cases of esophageal obstruction in cattle[100] expectant measures are adopted and are often successful. However, if after the lapse of some hours no relief has occurred and the animal is showing sign of distress the veterinarian should act quickly and effectively.

If the tympanites is alarming, that requires first attention. To relieve the choke the obstruction is located and, if within reach, an attempt is made to remove it by passing the hand into the gullet. To do this, if the cow is at all uncontrollable, she is placed on her back and the muzzle extended. This is not only safer for the operator than having the head held, but it also facilitates removal of the obstruction. It sometimes happens, even when the obstruction can be reached, it cannot be grasped and withdrawn. When this condition is presented the method of choice is to relieve the obstruction by its passage into the rumen. Removal by surgical means commonly results in an esophageal fistula and is to be considered only as a last resort.

The use of veratrin or drugs of similar action to relax the esophagus or otherwise facilitate swallowing the obstruction is somewhat dangerous and produces a bad impression on the owner. Intravenous injection of chloral hydrate is open to the objection of being difficult to accomplish in a frightened, suffering beast and the sequel is serious if any part of the injection be deposited in the tissues. Paravertebral anesthesia has been a great help.

The nerves to be anesthetized are the tenth cranial and its companion the sympathetic trunk. The injection of the anesthetic (with 2% of a 1:1000 solution of adrenalin) is made in rather large amount—30cc to 40cc—subcutaneously in the fossa atlantis on the left side and an equal amount, intramuscularly over the 4th, 5th and 6th cervical vertebra.

In the clinic at Vienna a 0.15% solution of percaine (nupercaine) was the anesthetic used. The writer has used also a 1% solution of novocaine with satisfactory result.

No opportunity has occurred to use this method of paralyzing the muscles of the esophagus and thus increasing its diameter in the case of choke in the thoracic portion of the esophagus but, in such case, the author would make the injection into the fossa atlantis to anesthetize the vagus but would place the other injection nearer to the entrance of the chest.

Excretion of Histamine in Urine of the Dog

Previous attempts to demonstrate the presence of histamines in normal urine by biologic methods have failed. An experimental method was devised which demonstrates that histamine is normally excreted in the urine in a conjugated and inactive form from which the active base can be released by hydrolysis with hydrochloric acid.[96] A minute amount of free histamine is shown to be normally present in the urine. The concentration of histamine conjugate in the urine depends upon the diet. Meat contains histamine in free form and raises the amount excreted to a marked degree. Casein, fresh white cheese and egg albumen contain no free or conjugated histamine and do not increase histamine excretion. Carnivora excrete far more histamine than do herbivora. Histaminase does not act upon conjugated histamine.

The histamine excretion in dogs was found to be like that of man. Dogs on a histamine-free diet, when injected subcutaneously with from 6 to 50mg of histamine, excrete free histamine in the urine; the amount of conjugated histamine excreted is unchanged. When histamine diphosphate is given orally to these animals, three to 5% is excreted as conjugated histamine and none as free histamine. When conjugated histamine is fed to dogs it is excreted more rapidly in the urine than histamine diphosphate and about 60% can be recovered in the urine.—*H. J. M.*

[96] Gould, Geo. N. A preliminary note on digestive disorders of cattle associated with hay and reseeded pastures. *Vet. Rec.*, 57:31, p. 365. 1945.

[100] Strakosch, Richard. The treatment of esophageal obstruction or "choke" in the ox by paravertebral anesthesia. *Austral. Vet. J.*, 21:2, p. 40. 1945.

[96] Anrep, G. V., Ayadi, M. S., Barsoum, G. S., and Smith, J. R., *J. Physiol., pp.* 103-155. 1944.

MEETING THE CHALLENGE OF DISTEMPER CONTROL

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Large-scale German experiments, organized and planned by Heinrich Himmler, Nazi Gestapo chief, and performed on prisoners in the Dachau concentration camp, together with experiments on animals, are reported by a U. S. investigator as proving that rapid and intensive rewarming of the body by means of hot water baths is superior to other methods of resuscitation from shock resulting from prolonged exposure to cold.

Resuscitation by rapid warming in hot water was first proposed in 1880 by the Russian scientific writer, Laptschinski. This method apparently was forgotten, and slow and gradual methods of gentle rewarming have come into general use. In Major Alexander's opinion, the German scientists have proved that the slow methods endanger life by allowing an excessive "after-drop" of body temperature and do not sufficiently relieve the heart from the overload in the proximal districts of circulation.

Dr. Alexander reports that the superiority of Laptschinski's method was discovered accidentally by German scientists, when it was found that guinea pigs, after having been chilled to ordinarily fatal levels, revived rapidly upon being placed in a hot water bath of about 40° C. (104° F.).

Credit for rediscovering Laptschinski's forgotten method and for working out the scientific principles involved, through animal experiments, belongs principally to Dr. A. G. Weltz, director of the Institut fuer Luftfahrtmedizin (Institute for Aviation Medicine), Munich, and his co-workers. Fundamental studies on treatment from prolonged exposure to cold were conducted at the Institute.

Experiments on human beings were carried out primarily upon the initiative of Himmler, through his personal and scientific staff down to concentration camp personnel. The Luftwaffe cooperated by supplying apparatus and additional medical personnel.

The experiments at Dachau are reported to have included placing prisoners in tubs of ice water, while their sufferings and death throes were recorded by sets of electrical instruments attached to their bodies.

Experimental use of the rapid resuscitation method on humans proved so effective that in November, 1943, the Luftwaffe made it mandatory for personnel rescued from cold water to be subjected to rapid warming in water of 45° C. for purposes of emergency resuscitation. The German Navy also instituted use of this method.

In June, 1945, a large quantity of material —documents, letters, and other data—on the experiments at Dachau was found by the U. S. Army among especially secret Nazi papers taken from Himmler's secret cave in Hallein, Germany. Further search of the papers revealed a complete and final report on the experiments with human beings. An extensive abstract (17 pages) of this document is contained in Major Alexander's report.

Major Alexander's discussion of the German exerimental work is contained in the first 68 pages of his report. The remainder of the report contains papers (in German) written by German scientists on their researches and observations on the chilling and warming of animals in water, chilling and the effects of alcohol, death from cold and oxygen deficiency, and related subjects.

Report No. 250 may be purchased in the OPB Reading Room, Commerce Building, or by mail. Mail orders should be accompanied by check or money order, made payable to the Treasurer of the United States, and should be addressed to the Office of the Publication Board, Department of Commerce, Washington 25, D. C. Price $2.00.

■

Dog kennels costing $10,000 have been completed at the Army Air Forces Convalescent Hospital and Farm at Pawling, New York. Extensive dog training has been carried on in the program of "Dogs for Convalescents" which originated the plan. Patients who "adopt" a dog are required to care for their pets—see to their feed and training. Clinics are held each week to advise men as to the best care for their dogs—attendance is a "must" for every man at Pawling who owns a dog.

In little more than a year 400 dogs were procured for the convalescents and there are requests for hundreds more from the patients.

■

D.D.T. Good But Sometimes Dangerous

In a report[1] on "Experiences with D.D.T. on a turkey ranch, Drs. E. McNeil and W. R. Hinshaw find that in the control of flies, inside the house, the results were remarkable. Even when sprayed on the ground in a lane between the houses, the reduction of flies was amazing. No injurious effects were noted at any time in the poults, although they ate some of the flies which continued to fall from the ceiling into the feed and water. This does not indicate that there is no limit as to the number of killed flies which a poult or chicken might eat with impunity.

Quoting[2] Dr. C. H. Curran "Saipan Island is approaching a condition of devastation (following the application of D.D.T.). No birds, no mammals, no insects except a few flies, and the plant life is decreasing. It seems possible that the same may happen on the island of Okinawa. Chickens had died as a result of eating insects killed by D.D.T."

At Larro Research Farm, in a preliminary test designed to determine the amount of D.D.T. chicks will tolerate, the admixture of four-hundredths of 1% of D.D.T. to the feed killed all chicks within three weeks.

It is clear that judgment and caution are in order, because (again quoting Doctor Curran) "if improperly used, D.D.T. might actually prove more devastating to man's economy than the atomic bomb."—*Everybody's Poultry Magazine.*

[1] *California Cultivator*, 92:18, p. 476.
[2] *Natural History*, 54:9, 1945.